SUPPLEMENT.

The Mining Journal,

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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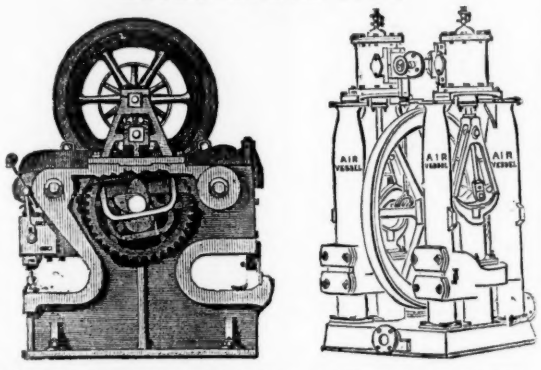

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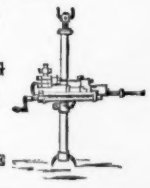

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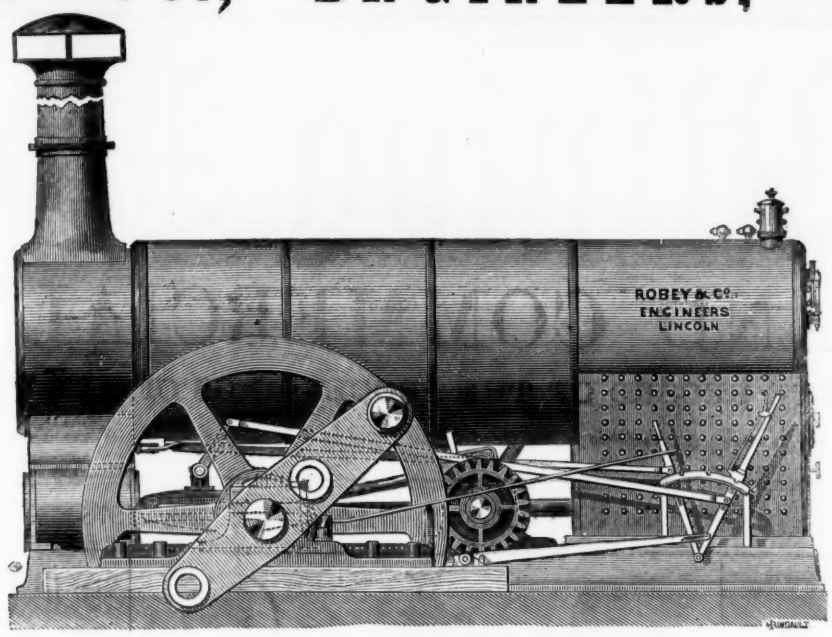

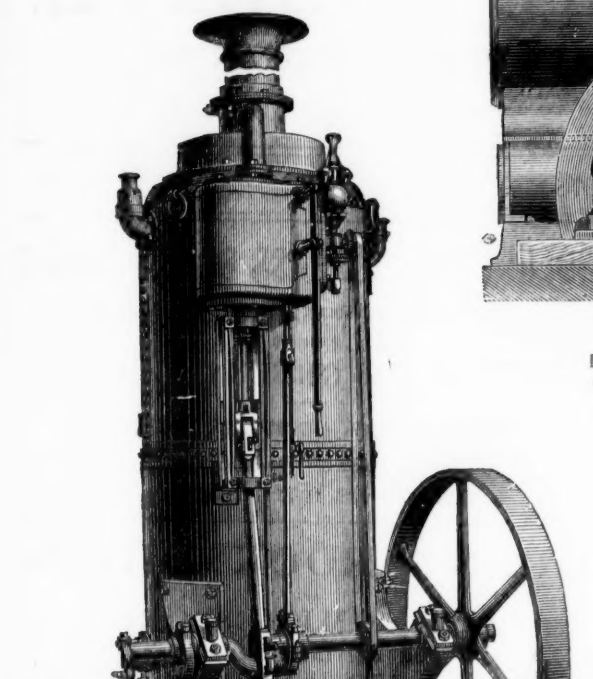

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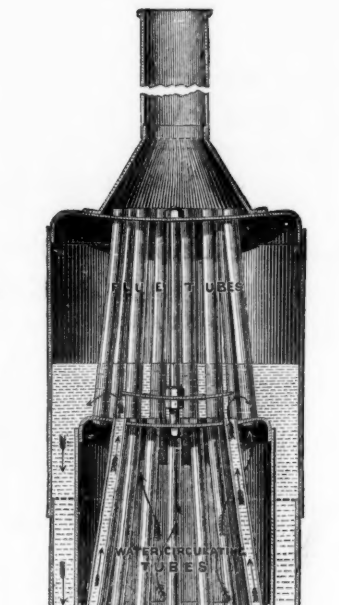

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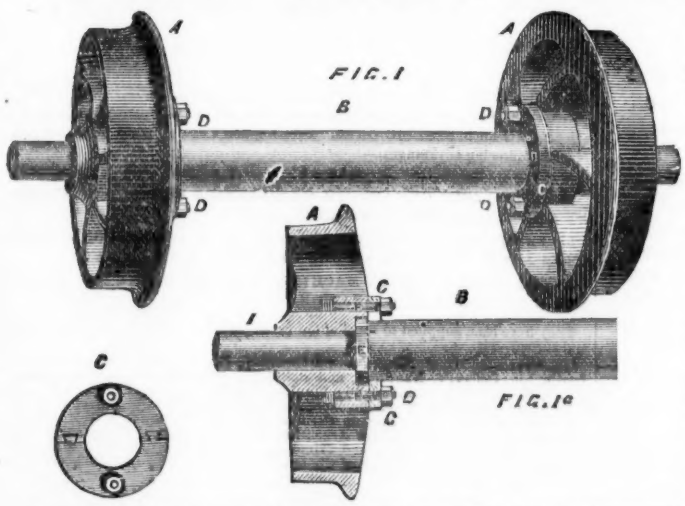
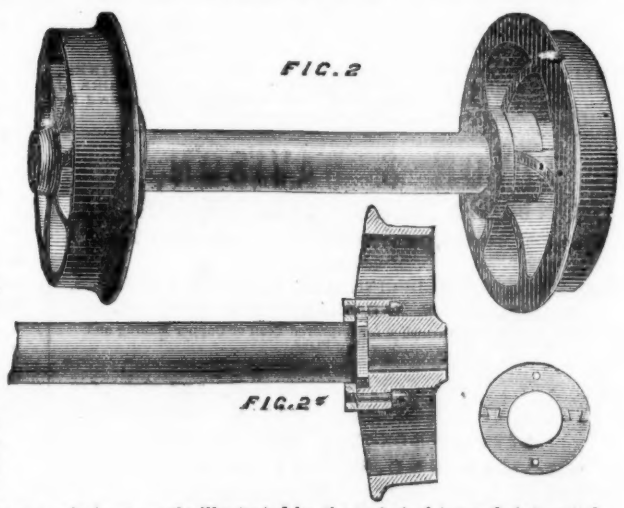


Figs. 1 and 1a show a longitudinal view and plan of a pair of corf wheels and axles fitted up for outside bearings. A A, are the wheels; B, is the axle; C C, the washers; D D, the bolts; E, the collar on axle B; and F, the recessed boss in the wheel.

The wheel is cast with a recessed boss in the inside, made to any shape, corresponding in shape and depth with a collar formed on the axle. Figs. 2 and 2a show a longitudinal view and plan of a pair of corf wheels fitted up for inside bearings. The washers are secured to the boss of the wheel in outside bearings by bolts and nuts, and in inside bearings by set screws.

The advantages of the above system are:—A, the singular simplicity of fitting—enabling any inexperienced person, with the aid of a spanner or screw-driver, to detach the wheels from the axle or fit them together in a very short time. B, perfect solidity, the wheels and axles becoming as one piece. C, durability, no need or putting the wheels or axles into the fire, under any circumstances, which is so detrimental to wheels, rendering them remarkably brittle, and which under other systems are detached from the axle by the aid of fire. D, economy in fuel and wages, saving hundreds of pounds yearly to large coal owners. The



important desiderata secured by this invention of simplicity (so often wanted in patents), solidity, durability, and economy, have not only been amply illustrated by the technical journals interested in the progress of mining operations in this country, but have at once been fully recognised by leading authorities in the mining world.

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Original Correspondence.

THE LONDON COAL SUPPLY.

A SAVING OF UPWARDS OF SEVEN SHILLINGS PER TON ON RAIL CONVEYANCE OF COAL FROM YORKSHIRE THROUGH AN IMPROVED SYSTEM OF LOADING AND DISCHARGING SCREW COLLIERS.

The defeat of the Great Eastern-Northern Junction Railway Bill in 1864, as well as of the South Yorkshire Coalowners Railway Bill in 1871, both promoted with the ostensible object of supplying London with inland coal at a reduced rate, and the recent negociations for the absorption of the Manchester, Sheffield, and Lincolnshire Railway by the dual great Yorkshire coal-carrying systems—the Midland and Great Northern—establish the fact that the metropolitan coal-consuming public and the inland coalowners are at the mercy of certain powerful combinations, and consequently mulcted to the incredible but uncontrovertible extent of two and a half million pounds sterling per annum, as shown by tabular statements in the sequel stimulated by the apparently supine inaction of the Yorkshire coalowners simultaneously with their oblivion of the imperious necessity of the association of capital to triumph over the insurmountable difficulties of partial individual efforts in the counteracting organisation of an improved system of marine transport, forming the absolute condition of rescue from the thraldom which oppresses their coal vend. To avoid prolixity by entering upon a lengthened development of official and other statistical data respecting the metropolitan coal supply, embracing the importation from 1755 to 1878, and the average prices at the ship's side in the Thames from 1805 to 1878, coal trade reports giving average rates of freight for a series of years, &c., it may suffice to state that the carriage of coal by railway has increased from 8000 tons in 1845 to 5,421,081 tons in 1877, whilst seaborne in the same period has decreased from 3,400,000 tons to 3,170,601 tons, almost exclusively from the Tyne and adjacent ports, the aggregate importation in 1877 being 8,591,682 tons by rail, canal, and sea, of which the infinitesimal quantity of 24,519 tons in 247 vessels, averaging 99 tons per vessel from Yorkshire, an increase in 24 years of only 272 tons, the import in 1853 having been 24,247 tons. The result of 1877 importation shows that the process of increase by rail is 243,148 tons, whilst seaborne exhibits a decrease of 102,841 tons.

The leading journal, the Shipping and Mercantile Gazette, of Oct. 20, 1871, in a leader, stated—"The coasting trade to the Thames has fallen off 95 per cent. since the opening of the competing carriage by rail." The chief railway periodical of Jan. 5, 1867, stated "the railways continue to gain considerably upon the carriage of coal to London, and in time, no doubt, will convey nearly all this traffic." A report of the Coal Trade Committee of Newcastle states—"Looking at the return of coal sent to London, it is superfluous to enforce the necessity of cheapening the cost of transit and delivery by every practicable means. The average rate of the year from by far the largest part of shipment, Shields being 6s. 10d. per ton, the January rate 8s. 6d." With the glut of steamers taking refuge in the coal trade caused by the depression of the shipping interest, and steamers and sailing vessels built on the Tyne and in other coal ports for the trade to China, East Indies, &c., from London taking coals as ballast from the Tyne, &c., to the Thames, the highest practical authorities—coal factors, colliery and screw collier owners, as well as coal merchants—estimate the average annual freight from the Tyne at 5s. 6d. per ton for large screw colliers, and 6s. 6d. for sailing vessels, all discharging below bridge; to which is to be added 1s. per ton lighterage. The fact of Durham coal being carried by rail to London in large quantities at 10s. 8d. per ton, and 1s. 3d. per ton for trucks, proves a very defective state of marine transport. The average size of colliers in 1877 was 595 tons cargo capacity. The average rate of freight from Yorkshire is 5s. per ton, and from Scotch ports 6s. 6d. The restricted capability of screw colliers in matter of dispatch, consequent upon the engine portion, involving the largest amount of capital and attendant expenses, according to the number of voyages in the year, to the extent of 60 to 70 per cent., and on sailing vessels 75 per cent. of the total working expenses, as per a paper read at the Institute of Civil Engineers on "Steam and Sailing Colliers" being condemned to inertion during the loading, sale, and discharging periods, is the preponderating cause of their signal failure as compared with rail, hereinafter set forth, apart from their greatly augmented draught, entailing, with a vastly increased breakage, a costly lead to modern deep-water docks and shipping berths at great distances from the pits. Sir George Elliot, M.P. for North Durham, stated to a parliamentary committee, that coal on shipment on board these large screw colliers falls 15, 20 to 25 ft. With tender coal the breakage is very great in loading, trimming, and discharging. A certificate from several leading London coal merchants shows that coal shipped as proposed will arrive in much better condition than by the existing large screw colliers.

The evidence of Mr. J. R. Scott, Registrar of the Coal Exchange, before a committee of the House of Commons on the South Yorkshire Coalowners' Railway Bill, stated that the seaborne coal trade was totally extinguished from Dover to Plymouth. The vast outlay of capital at the various coal pits, in docks, and later with deep water shipping berths in the stream, shows the great importance attached to rendering every facility for the performance of the greatest number of voyages in the year, in which, however, no increase has been effected within the last 25 years, which state it is utterly impracticable to ameliorate under the existing system, when even mulcted with dispatch money in order to attain the extreme minimum rate of working expenses. The evidence of a leading Durham coalowner before a committee of the House of Commons is to the effect that the working of screw colliers depends mainly upon dispatch in loading and discharging. As the wages, insurance, sinking fund, amounting as precited to 60 per cent. and upwards, are identical, whether few or many voyages are made, the capital invested can, consequently, derive a treble profit without any augmentation of these expenses. The Transactions of the British Association (Newcastle meeting, 1863) show that in point of dispatch the hydraulic as well as the gravitation system in the loading of coal are limited by the labour of trimming the coal in the hold of the vessel, which is avoided in the proposed system with end-to-end hatches—*pari passu*, the discharging by derrick and steam crane in London does not release the engine portion from the delay inseparable from docking and the period of discharging.

In this era of material progress, when the minutes of evidence before the Royal Commission on Railways, 1866, the Transactions of the British Association, 1863, the Proceedings of the Institution of Civil Engineers, 1855, show that the material of land conveyance of coal has increased 2000 fold from its commencement, whereas the cargo capacity of marine transport from the Tyne has only quadrupled in the last 30 years, with no increase in number of voyages in the year during the last 25 years in the London coal trade, it need not create surprise that this system is destined to displace the existing screw colliers and rail. Any and every existing sea or rail transport falls far short, as shown in the sequel, in the economy of transport of this undertaking, appropriately denominated by leading railway contractors a floating railway, to which it in every sense assimulates, being free of the heavy items incidental to a railway; legal, parliamentary, and engineering charges, cost of land, and permanent way and works, entailing no similar continuous heavy outlay for rates, taxes, and maintenance, and destined by its surpassing every existing system of marine transport in economy to convert the trackless regions of the ocean, as it were, into evanescent railroads, rendering nugatory in the coal, wood, and grain transport every attempt at competition in as great measure as the locomotive has displaced the carrier's wagon of a former period. The profits arising to shareholders are based upon a contract entered into with a metropolitan gas company, who have given the names of their shareholders, with authority to circularise them for financial support, as well as other coal importers, at a rate of freight ensuring a dividend of upwards of 10 per cent., after ample provision has been made for redemption of capital, insurance, repairs (an exuberance of time allowed for such), port charges, pilotage, fuel, wages, oil, tallow, &c., and all charges of management and other expenditure of whatever nature. The proposed, in every sense practical, system consists in the construction and employment of an ordinary screw collier, with six direct-action steam-cranes for light lifts, end to end hatches, a steam-tug on the Ouse, Trent, and Humber, and a steam-tug on the Thames, 20 deck lighters, and 30,000 Admiralty coal sacks, which being filled at the pits in the Aire and Calder Navigation, Goole or Keadley, in the lighters are towed to the mooring of the sea-going steamer in the Humber to await her arrival for embarkation, and discharge into lighters at Southend, and thence towed to alongside gas and coal wharves above the metropolitan bridges.

The seagoing steamer has thus always awaiting its return from the Thames a made-up cargo, with 72 men at each end in constant employment to load and discharge, so that no delay is experienced, the essential means of success being dispatch, enabling the greatest number of voyages to be made in the year. The seagoing steamer is thus entirely liberated from the delays in the loading and discharging operations of docking, waiting turn, or loading under a drop or spout, &c., bearing analogy to a locomotive, by no means a fixture to any mineral rolling stock or wagons, as the existing screw collier is to the cargo portion of the vessel, but, as is usual in coal traffic, on approaching the shipping staith or metropolitan coal stations with a train of coal wagons, uncouples, and turns over the same to a terminal or pilot engine, or otherwise, as the usage may be, to be emptied into the ship's hold, or bay or wharf of the London coal station, or into barges, and as it would be quite out of the question in an economic point of view to wait for their discharge, involving, in the latter case especially, a lengthened delay, takes up a made-up train of empties for return to the collieries or otherwise as ordered.

Capt. Tyler's general report on the working of the railways of the United Kingdom for 1873 shows that mineral trucks are not two months in the year in motion. Were the locomotives to act upon the same principle as existing screw colliers, what a disastrous result must ensue. The engine section is kept uninterruptedly employed in the proposed undertaking.

A paper on "Mercantile Steam Transport Economy," by the Chief Engineer of Her Majesty's Dockyard, Woolwich; British Association; the excerpt minutes of Proceedings of the Institution of Civil Engineers; "On the Comparative Cost of Transit by Steam and Sailing Colliers;" Mr. G. R. Stephenson's letter on the working of machinery; the evidence of a leading Durham coalowner before a committee of the House of Commons—show that the economy of working steam colliers depends upon dispatch in loading and unloading. The relay system of lighters attached to the proposed undertaking exonerates the owner from the great deductions under the head of dispatch money with which the modern screw-collier is mulcted.

The following comparative tabular statement demonstrates a saving effected by the proposed undertaking of upwards of 7s. per ton on rail transport, and upwards of 5s. per ton on Tyne, Hartlepool, &c., shipments, which is tantamount to a monopoly of the metropolitan coal supply. It is quite an illusion to imagine that coal can be conveyed by rail in competition with water carriage, which is controverted, as shown in the sequel, by the Chairman of the London and North-Western Railway Company, one of the most eminent authorities on railway traffic. The proposed system has been submitted to the rigorous investigation of a promine nt metropolitan firm in the coal trade, simultaneously steam-collier owners, whose opinion is that it will bring about a complete transformation in the London coal trade.

By Rail. YORKSHIRE COAL.			
Rail rate	8s.	5	d.
Trucks	1	0	
Lighterage	1	0	
Landing	0	11¼	
Breakage (as per Mr. Cookerell's evidence before a Committee of the House Commons)	1	7	
Total	12s.	11¼	d.
TYNE—Seaborne.			
Average freight	5s.	6	d.
City dues	1	1	
Lighterage	1	0	
Filling vans	0	11¼	
Insurance and metage	0	3	
Breakage (as per Mr. Cookerell's evidence, House of Commons)	2	4	
Total	11s.	1¼	d.
TYNE—Gas Coal.			
Freight, &c., as above	8s.	9¼	d.
Deterioration by exposure in open barges	1	6	
Total	10s.	3¼	d.
Screw collier, with six steam cranes, 1100 tons all told, 98 h.p., 9 knots speed, 90 A1, 561 tons register	£15,000		
20 decked lighters	5,000		
2 tugs	4,000		
30,000 sacks	9,000		
Total	£33,000		

Seaborne, as proposed. YORKSHIRE COAL.			
Freight	1s.	10	d.
Sacks	0	8	
Filling and stowing	0	6	
Discharging (Cranage included in ss. account.)	0	6	
Landing	0	6	
City dues	1	1	
Insurance and metage	0	3	
Saving	7	7¼	
Total	12s.	11¼	d.
Seaborne, as proposed.			
Freight, &c., as above	5s.	4	d.
Saving	5	9¼	
Total	11s.	1¼	d.
Seaborne, as proposed.			
Freight, &c., as above	5s.	4	d.
Saving	4	11¼	
Total	10s.	3¼	d.
Insurance, depreciation, repairs, 15 per cent. less depreciation and repairs on sacks, in separate account	£4,320		
Portcharges—London	346		
Goole—say	1,000		
If at Keadby	nil.		
Fuel	2,010		
Wages	2,038		
Oil, tallow, &c.	288		
1s. 4d. freight	10,000		
6 tugs, 1s. 10d. per ton; 150,000 tons coal in year; 150 voyages; 1000 tons cargo; dividend, 10 per cent., 5¾d. per ton; management, 2d. per ton.			

Goole to Hull, 30 miles; Hull to Southend, 175; Southend to London, 50; equal to 255 miles. Sea navigation, 350 miles, at 9 knots, 40 hours; 10 hours to load and discharge, 175 voyages in year, but (say) only 150, allowing six weeks for overhaul and repairs.

In the excerpt proceedings of the Institution of Civil Engineers evidence is adduced in the screw collier traffic from Sunderland to London of four months only being consumed in the year's working, the remaining eight months being taken up with loading and discharging. Based upon a return from the Coal Factors' Society, Coal Exchange, and the actual working of screw colliers at the present date discharging at the derrick by steam cranes, and in the Pool, &c., the proposed system through the engine section being kept uninterruptedly under way, is capable of accomplishing treble the number of voyages in the year of existing screw steamers; further, of the lighters proceeding by reason of their lighter draught direct from the coal staithes on the Aire and Calder Navigation, &c., to alongside the gas and coal wharfs above the metropolitan bridges, as well as the Regent's and Surrey Canals, the existing system entailing a very heavy charge for lighterage and breakage, as well in the loading and trimming as in discharging into barges in the Thames, to which must be added the deterioration inseparable from coals being exposed in open barges to rain, snow, &c., especially in the case of gas coal (*vide* Richards's, 1877, work "On Gas," page 72). Let us glance at the capability of railways to compete with water carriage for heavy traffic. A pamphlet entitled "The Insolvency of Russia, and of Russian Railways," by a functionary attached to the Russian Ministry of Finance during 25 years, published by Deacon and Co., Leadenhall-street, shows from the printed report of the leading Russian railway—St. Petersburgh to Warsaw—the working expenses to be 92 per cent.; Odessa line, 98 per cent.; Reval line 88 per cent.; the Tambow-Koslow line 122 per cent.; the Novotorjok line 144 per cent.; the bankrupt Hango line, fruitlessly put up to public auction, and still worse cases. In France the "Regime des Travaux Publics en Angleterre," par M. de Franqueville, of the Ministry of Public Works, Paris, shows that out of 16,296 kilometres in France 10,969 do not carry traffic sufficient to pay for expenses of working and interest of capital; 1296 do not cover the mere working expenses. The Edinburgh Review, commenting on Captain Tyler's general report on the railways of the United Kingdom, states:—"The Midland Railway Company must incur severe loss by a charge for carriage of even thrice the amount per ton per mile of the Aire and Calder Navigation, the latter exceeding by far our rate." The Times City Article of June 5, 1871, stated the contest between the Midland and Great Northern Railways was carried on at a joint loss of revenue at the rate of 300,000*l.* per annum. The Great Northern Railway proposed in 1846 to carry coal to London at 3s. 4d. per ton per mile, being a moiety of the rate then charged on existing railways, which, it was vehemently contended, was ruinous and impossible. To compete with the low but defective sea carriage rate they came down to one-half of their original proposition, and the Times of April 11, 1871, shows 5s. 1d. per ton, including 1s. 1d. City dues, was charged by them, re sulting, as stated above, in a terrific loss. These days of hallucination have passed, and much higher rates are now currently levied. All artificial competition with the requirements of true economy must sooner or later lead to disaster. Coal from Yorkshire and Derbyshire by rail transit, it is quite evident can be displaced in London by this system.

The Chairman of the London and North-Western Railway stated to a deputation from the Liverpool Chambers of Commerce "Cannot a railway compete with a free water transit." The Edinburgh Review on Capt. Tyler's printed report states the net return on capital invested in railways which in 1858 was 3¾ per cent., was in the course of 16 years, with a vastly increased traffic, not raised to more than 4·14 per cent. in 1874. The fixed annual charges of the railways ought to be debited to mineral traffic in a far larger proportion. On the face of such information as is furnished by the Board of Trade, eked out by such supplementary details as it has been able to collect, it appears it is not far from the fact that the railway companies incur a definite loss on the actual working of their mineral traffic. It is with those authorities to disprove the inference if possible by the publication of these details, in the absence of which no railway proprietor can tell what is being done with his property. The purchase of 1716 miles of inland navigation out of 4135 miles of railways requires no comment. Mr. G. R. Stephenson, in his opening speech as President of the Institution of Civil Engineers, called attention to the important fact, which no one will dissent from at all conversant with the rapid speed of trains on the great coal-carrying lines to London, that increased accommodation for the heavy traffic, or duplication of our lines of railway, was becoming indispensable, which will be a death-blow to an unnatural competition. The fearful collisions on our railways conveying coal to London demand separate lines of coal and goods traffic.

In the United States of America the annual report of the State comptroller, January, 1875, gives the cost of transport per rail at 0·923 cent per ton per mile, and per canal 0·268 cent exclusive, and 0·402 inclusive canal dues, and such with actually fine parallel through competing railways, and two more in construction. The New York Chamber of Commerce report of February 25, 1875, on the competition of the Erie Canal with five through railways states most emphatically that the transport of merchandise not only is far cheaper by water than by rail, but equal in dispatch and precision. Major-General Sir Arthur Cotton, on the Ganges Canal, states all but a fraction of the traffic of the United States is conveyed by water, and such in the face of an immense network of railways. The British Consul-General's report from Leipsig states "Nothing can compete with the water rate up and down the Rhine. The same can be said of the Elbe, and the inland navigation of Russia, France, &c. Water carriage enables the farmer of California to compete in the markets of the world with those of Illinois and Indiana, and the peasants of the Black Sea, though the distance is some 10,000 miles or more. An analysis of various dates of propulsion, traction, and haulage by marine fluvial and canal navigation presents a powerful corollary of confirmatory evidence by the highest practical authorities, amongst which may be cited Annual Congress Institution of Naval Architects, London, March 30 and 31, 1871, paper read "On the commercial economy of several types of merchant steamers," "French inland navigation by the Ponts and Chaussies, report by the French Minister of Marine," "On the Mercantile Steam Shipping of England," French Government Commission of Enquiry. Metallurgical industry, in which the cost of transit plays so important a *role*, the eminent hydraulic engineer's, Mr. Bateman, evidence before a parliamentary committee on the cost of water transit, and the general manager of the Midland Railway evidence Royal Commission on Railways, at one period an extensive owner of screw colliers. It is evident, therefore, that the proposed undertaking merits the support of the Yorkshire coalowners in particular, and the general coal-consuming public of the Metropolis, and investors generally, being entirely devoid of a speculative character, and offering a large and safe return on invested capital. The writer has received promises by letter of financial co-operation and support from several leading Yorkshire coalowners, and he submits the general body of coalowners will find it in their interest to convene a public meeting or otherwise upon so important a question, the writer holding himself at their absolute disposal with the most minute details, and under the very highest auspices. The first coal factors have agreed to forward the movement in every possible manner.

Clapham, London, Jan. 17. —— W. J. THOMPSON.

COMPRESSED AIR—ITS APPLICABILITY FOR PUMPING.

SIR,—It has often occurred to my mind that there is need of reform in the system of pumping in general use throughout our metalliferous mines. Those who are perfectly acquainted with the subject can bear testimony to the great cost and trouble attending the ponderous plunger and drawing-lifts, with their main-rods, angle-bobs, balance-bobs, &c., in vogue, with scarcely any alteration or improvement during the last fifty years. A few objections against this old system may be enumerated as follows:—1. Shafts have to be made large, and, consequently, cost more money to sink.—2. The great size and weight of the columns of pumps in proportion to volume of water raised, owing to the slow motion applied to the fluid.—3. The weight and size of main-rods, strapping-plates, bobs, and connections.—4. Flat-rods and connections as applied to connect water-wheels to pump work.—5. Heavy shears, capstans (steam and hand power), and general shaft-gear necessary to handle the above.—6. The liability to get out of order, and the disastrous nature of damage done in case of breakage.

These and a host of minor details put together make up a large amount in our mines' costs. To this is to be added last, but not least, the great loss of motive power. Sliding the masses of timber and iron up and down the shafts and flat-rods at surface, with the necessary balance-bobs, &c., must entail enormous friction—no matter how well and true the work may be put in and erected; and I think I am well within the mark when I state that in many of our mines in this county fully a-third of the power of the water-wheel is so lost. This in the majority of cases where the mines are worked entirely by water-power is the margin between work and play during the summer months. It will, therefore, be an inestimable boon to heavily watered mines if some better and cheaper means of pumping can be devised.

I am not aware that compressed air has ever been used for the purpose; but in my opinion it offers a complete solution to the problem. The manner in which I would apply it is as follows:—Take, for instance, a water-wheel, connect to it with direct-gearing an air-compressor sufficiently large and poweful for the purpose required of it. Connect to the compresor a main line of tested pipe; carry same down engine-shaft, and at convenient distances place direct-acting pumps—of the Tangye, Blake, or Hayward type. All of these, I believe, work as well with compressed air as with steam. The advantage of such a system is obvious. The above class of pumps have no moving power beyond the piston-rod, with the piston on one end and plunger at the other, a mere fraction of the weight of the moving mass of main rods, &c.; consequently, the friction and loss of power will be but a fraction likewise. This type of pump—being double acting and capable of being driven at a higher rate of speed—imparts to the fluid a corresponding quicker motion; thus a much smaller column of pumps for carrying the water is required. The Blake pump, moreover, is provided with a removable lining (patented) to the water cylinder—so that in case of wear by gritty water, &c., it can readily be changed, quite as easily as re-gearing the leather on buckets as now used.

There are, it seems to me, advantages to be gained on every hand by adopting such an arrangement as I have endeavoured herein to sketch—less first cost of machinery, pipes, pumps, &c.; less cost of fixing, less working and maintenance cost, less trouble, and better work. Add to these the advantage of a column of compressed air in the mine for ventilating purposes, working rock-drills, &c.

I shall be much pleased if this letter has the effect of arousing some

discussion on the subject, as it is a most important one, and deserving of more particular attention these times of low prices for our mines' produce. JAMES G. GREEN, Engineer, &c.
Monydd Gorddu Mine, Cardiganshire, Jan. 15.

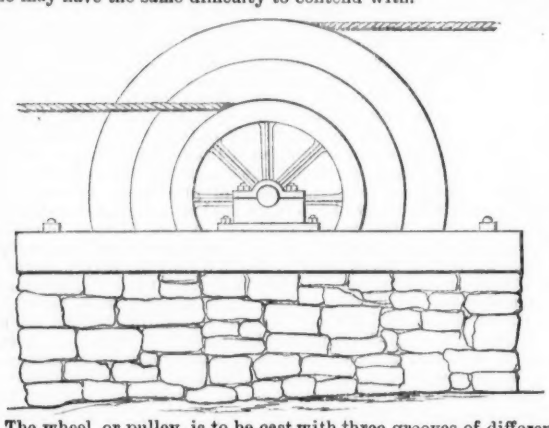
HAND-POWER AIR-COMPRESSOR.

SIR,—Having noticed the proposal to employ hand-power air-compressors in connection with rock-drills I am desirous of obtaining some particulars as to the quantity of air consumed, and the power required for effecting the compression. For example, how many cubic feet of air, at an average of 45 lbs. to the square inch pressure, would be required per minute to work the smallest size Ingersoll drill if run at 250 strokes per minute; and, secondly, what size reservoir would be required in order to permit of this average being kept up for one hour. I assume that the work being commenced with a fully charged reservoir, and 40 lbs. per square inch being the minimum permissible, the pressure at starting would probably have to be 60 lbs. or 75 lbs. to enable it to work down to the 40 lbs., and the question, therefore, seems to be what size reservoir would contain enough air to work the drill whilst making about 72 feet of hole without falling below 40 lbs. pressure.

If such a reservoir could be used in a mine I should think there would be no difficulty in compressing the air by hand labour while the debris of the previous shot is being cleared away, for the compressors need not be close to the face, and two or three pares of men could be employed to work them. The advantage would be that the six holes could be put in as quickly as by the steam-compressed air, and the compressor men would be accumulating the power required for the next six holes whilst other work was being done, the result being that three times the speed of ordinary hand labour would be attained. I admit that three times the number of men would be employed, but this is immaterial, the great question being to increase the speed, although the number of men employed in the end is necessarily limited.—*Redruth, Jan.* 18. MINER.

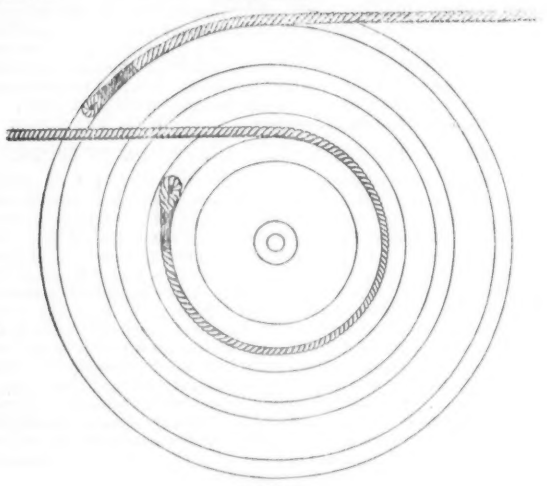
PUMPING MACHINERY.

SIR,—Having been called upon to devise some means of changing the length of stroke in a lift worked by a wire-rope from a water-wheel, where the driving crank could not be altered owing to its being connected to a drawing machine, and where it would be difficult, if not impossible, to place a T-bob or a bell-crank lever over the shaft, I have suggested the arrangement of which I send you a drawing, in the hope that it may be useful to some of your readers who may have the same difficulty to contend with.

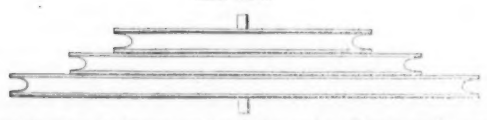


The wheel, or pulley, is to be cast with three grooves of different diameters round it, similar to the driving-wheel of a lathe, then by cutting the wire-rope and securing the driving end to the inner groove, and the driven end to the outer groove, a greatly increased length of stroke will be secured, while by reversing the position of the ropes the length of stroke would, of course, be considerably reduced.

Side view.



End view.



The side view is drawn without the outer flange on the groove, in order to show clearly the method of arranging the ropes, which must be fixed so that while the driving rope is being unwound the driven rope will be wound on the groove, and *vice versa* by the reciprocating action of the wheel. The rope may be secured by a stout pin passed through an eye worked in the end of it, and through holes in the flanges; but of course any other method of securing it may be adopted, and in practice it would, no doubt, be advisable to fix a short length of chain to work on and off the wheel. In my own case, with a stroke from the crank of 4 ft. 3 in., I have designed grooves of 2 ft., 2 ft. 9 in., and 3 ft. 6 in. diameter, and with these I get the following result:—

Length of stroke.	By driving rope on.	By driven rope on.
2 ft. 5 in.	Outer groove	Inner groove
3 0	Middle groove	Inner groove
3 4	Outer groove	Middle groove
4 3	Direct	
5 5	Middle groove	Outer groove
5 9	Inner groove	Middle groove
7 4	Inner groove	Outer groove

But of course any desired length of stroke can be obtained by altering the diameters of the grooves. G. W. C.
London, Jan. 19.

THE BLENDE TRADE.

SIR,—In reply to your correspondent, "A. B. C.," open competition can best be encouraged by all mines submitting samples to merchant buyers as well as smelters, and not confining sales, as is the case with some. If "A. B. C." has any blende assaying 56 per cent. for sale I am prepared to give over 3*l.* 16s. per ton for it, and if your correspondent will communicate with me I am ready as fast as possible to meet his views for 56 per cent., or any other percentage of blende he has. Surely in the nineteenth century the conduct of some mining companies is inexplicable, as open and fair competition is not only the surest and best manner of conducting their business, but in the interest of shareholders is clearly most desirable.—*Liverpool, Jan.* 23. GEORGE G. BLACKWELL.

THE BLENDE TRADE.

SIR,—If "X. Y. Z." will kindly append his address to his next letter, I will undertake to send him samples of our blende. The sooner matters are placed upon a fair footing between buyer and seller the better for all parties, for it is evident that unless this is done the trade will be taken up by mining companies. A. B. C.

THE PORT PHILLIP COMPANY.

SIR,—This company has made good progress this last year. It is satisfactory to learn that while Mr. Bland has been busy opening out and exploring the mine the tributers have earned for themselves and the shareholders good dividends. Should the various levels give indications of further improvement, the mine is not unlikely to become a favourite with investors. INVESTOR.

FLAGSTAFF MINING COMPANY.

SIR,—The daily papers have informed us that Messrs. Harvey, Pearson, and Wilde have resigned their seats as directors of this company. In all humility, I ask who have accepted their resignations? Is it Mr. Vincent, or the secretary, or the deluded shareholders, without a meeting, or the man in possession for certain liabilities here? How I wish Erwin Davis, with his associates, could be, as I consider, properly designated in an English newspaper. Of all mining shareholders those of the Flagstaff seem to me to have been most deceived.—*Pinner's-court, Jan.* 24. T. G. TAYLOR.

RICHMOND MINING COMPANY.

SIR,—Can anyone explain why, when in January, 1877, the produce of bullion from the mine was $55,000 per week, the shares were worth 8¾ to 9¼, while now, with a produce of $100,000 per week and $50,000 from the refinery, the market value is but 8½ to 8¾. Surely there must be some modicum of truth in these repeated telegrams, or, which I do not believe, the English directors must be the biggest perverters in existence, and surpass the celebrated Baron Munchausen. It seems to me that it would be a great mistake to sell these shares now, and for the moment there is nothing equally tempting to purchase. Plainly speaking, since our late chairman resigned I believe the reports fully. I was a doubter once.
Pinner's-court, Jan. 24. T. G. TAYLOR.

RICHMOND MINING COMPANY.

SIR,—In the Supplement to last week's Journal a letter appeared on the above mine, signed "Forethought," advising the directors not to increase the dividend. It is evident "Forethought" knows little of common arithmetic, or he would not have penned such an epistle. It was stated at the meeting that the profits for November were 24,000*l.*, the average weekly returns being $73,750; the average for December $80,000, with the same number of furnaces. I believe the cost would be less on account of the ore being richer. In the same proportion the profits for December would be 29,000*l.*—the average weekly returns for January (say) $100,000, that would leave a profit for this month of 45,000*l.*; altogether for three months, 98,000*l.* A dividend of 12s. 6d. per share would absorb (say) 33,000*l.* debentures to pay off 13,000*l.*, leaving a balance to carry over of 52,000*l.*, and yet "Forethought" advises the directors to carry over 50,000*l.*, and pay only 7s. 6d. per share. There is a feeling amongst the shareholders that they are fairly entitled to an increased dividend, and nothing less will satisfy us. LUCEM.
Jan. 22.

RICHMOND MINING COMPANY.

SIR,—I see numerous letters in the Journal about the amount of the next dividend in the above company. I hope, with the immense weekly returns, that the directors may see their way to paying a dividend of 7s. 6d. and a bonus of 5s. per share. H. C.

RICHMOND MINING COMPANY.

SIR,—Your correspondent "Forethought" takes exception to my earnest hope that the directors would be liberal with us in the next dividend. He evidently deems "the situation" so grave that nothing less than 50,000*l.* should be taken from a quarter's profits and set aside for future contingencies. His fears are unreasonable. A reserve fund is most desirable, but shareholders are hardly prepared to soar so high as your correspondent. To put to reserve 15 per cent. on the dividend is usually considered a very high figure. In our case I would put this sum by, which I believe will be about 10,000*l.*, not for equalising dividends, but purely a reserve fund. Whether a low dividend would be more acceptable to the market I am unable to say. Nor is it to the interest of *bona fide* shareholders to inquire. The market would probably get more confidence and steadiness could it be assured that the published returns are accurate, and likely to be maintained, and nothing I can think of would promote this more than the payment of a good dividend. If the money was divided there could be no surer sign that it had been earned, as the capital account has long since closed. In conclusion, I would remark that our directors are hardly using us fairly. The report from the committee ought to have been out a week ago. I am told it will not be published, but, at any rate, we ought to know this. I hope the report will not be made known until we can meet the committee and put questions to them upon matters not quite clear. NEEDY SHAREHOLDER.

RICHMOND MINING COMPANY.

SIR,—I quite agree with the ideas of "Forethought," as expressed in the Supplement to last week's Journal. There should certainly be a reserve fund of money created, looking to the fact that the reserve fund of ore is being exhausted at the rate of over 1000 tons per week, notwithstanding that the mining report shows only one good end with ore in the forebreast, all the others being poor, and the disputed ground cannot be touched for two years or more, even assuming that the legal decision is in favour of this company. What imprudence, then, it would be for the directors to declare swollen dividends, tending to the necessity of again resorting to mortgage debentures upon the first failure of ore which, unless new discoveries of ore are made, may be expected before long, at the rate of exhaustion, of over 1000 tons a week. I quite think "Investor" would have chosen a better *nom de plume*, as "Speculator," according to the views he takes; but perhaps if he considers that the mine is now selling at present price (say, 9*l.* per share) for 495,000*l.* sterling without the debentures, as a real investor he may have the same wish to create a reserve fund as "Forethought" has, but what he expects the "increased value" to be is an enigma to— EYE OPENER.

RICHMOND MINING COMPANY.

SIR,—I do not think that the shareholders in this company who are clamouring for an increased dividend next month have the true interest of the company at heart. They appear to be thinking only of putting a few extra pounds in their pockets without considering that the effect of paying too large a dividend will be to prevent the shares rising to a higher value. I am not quite sure that the directors will be in a position to pay more than 7s. 6d. next month without obtaining an advance from their bullion agent, though they may later on. It is very well known that the ore raised at the mine is not turned into cash for some months; and, therefore, I apprehend that a comparatively small portion of the enormous amount raised since the re-opening of the mine in September will have been converted by the beginning of February. I wish the item of "interest paid to bullion agent" to disappear entirely from the accounts, as it may do if the shareholders will have a little patience. But I go further than this. I say let the directors accumulate a large reserve fund, as they will surely do if, as I fully believe, they are wise and prudent men, and then presently we shall see an item on the other side of the account "interest received on investments." A good reserve fund would give stability to the company, and might, perhaps, occasionally be drawn upon for the purpose of equalising dividends. The St. John del Rey Company has, it is well known, a handsome reserve fund. I will only further add that I think it is well worth the consideration of the directors whether it may not be advisable to convert the shares into stock, as has been done with manifest advantage by some joint-stock companies.
Jan. 21. WELLWISHER.

MINING IN THE EAST—No. XXV.

CONTACT DEPOSITS OF THE BANAT.

THE TILFA GROUP OF MINES.—Extending northwards from the Csiklowa district, the banatite reaches the surface in two narrow bands only. The western one, which has somewhat the character of an elvan course, disappears under the schists which form the eastern rim of the Koschowitz basin, whilst the other, making a curve west and north, expands into a considerable tract, which is superficially separated into two masses by a thin covering of crystalline schists. The rocks thus surrounded on three sides by the syenite are schists, limerock, and kieselschiefer, which last extends to the continuous limestone beds on the east. Notwithstanding that at surface the syenite seems only to border this disirict, yet the dome-like form which the normally horizontal strata have acquired, and the highly metamorphic condition in which they are everywhere found, evince that the eruptive rock which has raised them to such a height can be concealed under no great thickness of strata, and this is confirmed by the appearance of tremolite through the hornstone at several points near the summit of Tilfa Kuppel. So far as exploration has demonstrated, the slopes of this dome are barren of deposits, except a large lentile of pyrites, which oxidation has partially transformed into impure hematite. This mine was designated Kiesberg on account of the vast masses of sulphide of iron found in the limerock along its junction with both the syenite and schists.

Half a mile to the north of Kiesberg are the Tilfa mines, circling around the northern portion of the bald-headed mountain Carnu Tilfa. The deposits have been found along the junctions of three long strips or tongues of rock, which extend from Tilfa northwards into the syenite on which they rest. The strip of schists has, at its western contact with the syenite, given rise to scarcely any mineral; indeed, the mine of Glückauf Bergmann is the only one opened, and but little was done in the small veins found, which near the surface contained ferruginous melaconite, at a small depth reverts to its original condition of pyritous copper ore of low quality. At the north-western side of Tilfa, on the eastern edge of the schist where it touches the crystalline limerock, is a remarkable flattened lentile of quartz, containing garnet and tremolite, which is impregnated with gold. It was exploited during the fifth decade of the present century to a depth of 20 fms. The diminished value of the auriferous ores at this depth, together with the many disadvantages entailed by the method of reduction adopted, led to the abandonment of this mine—which was known as the Twelve Apostles—before the deposit was properly exploited. The mundic of Kiesberg is also auriferous, and sometimes its oxidation has set the gold free, and allowed of its profitable reduction. On the opposite or eastern side of the same patch of limerock, at its separation from the Kieselschiefer, is situate the old mine of Servaci, which ceased working towards the end of the eigtheenth century. These deposits consisted of irregular lentiform accumulations of pyritous copper and malachite along the junction. The ores raised were auriferous, and selected portions of them are said to have contained as much as 80 ozs. of gold to the ton.

The tongue of metamorphosed rocks, which, embedded in the syenite, is separated from the schists on the west, and from the Kieselschiefer on the east, by intrusions of that eruptive rock, is, considered mineralogically, of peculiar interest. It is composed of a narrow course of garnet rock, flanked on the western side by a parallel gangue of tremolite, and on the other side by a similar gangue not so continuous; often the whole mass of the gangue is made up of beautiful asbestiform and radiated tufts. These rocks dip towards the east. The junction of these hornblendic rocks with the syenite has induced no valuable repositaries of mineral. Further north, at the point where the garnet rock ceases to extend, are found the deposits worked under the names Saint Jean Baptiste and Santa Barbara. In the latter mine abundant ores of grey copper were raised from a sort of stockwork lying on the junction; in the former isolated nests and strings of copper were discovered in some veins of syenite which penetrated the garnet rock.

The Kieselschiefer, which conceals the syenite of Cornu Tilfa, sweeps down the northern slope of that mountain, and suddenly contracting at its foot to a narrow strip, continues for several hundred yards into the eruptive rock. On its western side it is accompanied by a parallel band of garnet rock, which, supporting the hornstone, dips eastwards at an angle of about 45°. Between the Kieselschiefer or hornstone, and the mass of the eastern limestone, the syenite is exposed in an elongated ridge, which at surface has scarcely a width of 100 yards. Throughout this tongue exist several veins parallel to the junctions and to each other, which have been worked on for a length of 150 fms., and to the depth of the Königsegger deep adit, or about 50 fms. from surface. The veins are not always continuous either in strike or dip, but whenever they wedge out the ore is recovered by driving a little distance in the main direction of the flattened nodules. These so-called lodes, of which there are six, have a dip almost coincident with the metamorphic strata, which on both sides confine the syenite, and rarely possess a thickness of more than a few inches. The gangue enclosed in them is principally calcareous and siliceous spar, densely besprinkled with very rich yellow copper, which yielded ores averaging 15 per cent. When the lentiles are thin the ores are richer than when they become more nodular. Where the veins happen to touch the limerock they are richer, but passing northwards into the main mass of the banatite, the calcareous spar disappears, and the ores become poorer. The mines of Dreifältigkeit were deserted by the miners in 1846, and have not been resumed, but the veins were as productive as ever in the bottom.

In the midst of the hornstone, but in a gangue of garnet and quartz, is the mine of Corona, which was sunk on a sort of vein 2 ft. wide to a depth of 18 fms. below the Königsegger stolln. It produced grey copper ore and copper pyrites. The ores averaged 5 per cent., and held 10 ozs. of silver to the ton of ore, but as depth was attained the value of the ores diminished. The contact of the syenite—which in this portion contains much pistacite—with the schists on the north and west, and with the limestone of the Banat basin on the east, must be considered as completely sterile, no deposits having been observed along the faces of the separation.
Bersaska, Dec. 6. EMPRESSARIO.

MINING IN QUEENSLAND.

TO THE EDITOR OF THE WEST BRITON.

SIR,—I promised you a few notes from time to time, and as I have shifted my quarters into the heart of the copper district, perhaps a short account of the prospects of some of the "mines" about here might not be unacceptable.

With the exception of the Mount Perry and the Peak Downs, nothing has been really done to develope the immense tract of country that has been taken up under the Mineral Laws Act, and each "block" dubbed mine at once; but there can be no possible doubt about the richness of the ore that has been scraped out of the ground at a few fathoms from the surface, in order to send away specimens for the formation of companies to work the ground. The Mount Perry Mine, which is still working, has been subject to fluctuation, but is now going steadily on, and I believe from reports that have reached me the mine is looking better the deeper the sinking.

The Peak Downs Mine, which is now offered for sale, most likely owing to some split in the directory, has been, and I believe is, a wonderful mine. It commenced a desultory sort of working in 1863, under very great difficulties, no roads cut, with a working capital of about 33,000*l.* Since then there has been raised 100,000 tons of ore, which have yielded upwards of 16,000 tons of copper, and paid dividends aggregating 214,250*l.*, equivalent to 12½ per cent. per annum throughout on the 100,000*l.* of shares issued, or 37½ per cent. per annum on the cash capital embarked, besides large sums expended

in the purchase of plant and machinery, and in otherwise improving the property. This, I think, speaks for itself, and there are many such properties at present lying idle for the want of capital and experience to develope them. As I stated in my last letter, the great drawback has been want of proper carriage. Now (since my last) all the railway Bills before the Assembly have passed both Houses, and the lines are to be commenced without delay. The line from Warwick is to be continued to Stanthorpe, the great tin district, and a line from this place is to be made to Gympic, the great gold district. A line from Bundabery to Mount Perry is also to be commenced, which will go right into the very heart of the copper country. Bundabery, I may tell you, is a shipping port on the Burnett river; so there is nothing now to hinder the capitalist from becoming a proprietor of, I suppose, as good copper country as is to be found in the world.

There are plenty of mining properties to be had, and on easy terms, more notably the Normanby. This mine, which runs parallel with the Mount Perry, having only the Canterbury between the two, whilst working yielded immensely, although there was no really systematic working for want of funds, which also prevented anything like deep sinking. It is now lying idle, having an area of 240 acres, with all necessary machinery and furnaces for smelting, &c. The proprietors have only gone down 27 fms. in their deepest shaft, and are waiting for someone with capital to join in working in the orthodox manner. The Canterbury property adjoins and might be amalgamated with the Normanby, and would then be a first-rate property. The agent at Mount Perry, a Capt. Bennett, speaks most highly of this country and our Government geologist is confident of its being of great value. If you have any capitalists your way, now is their time. If they wait until the railway works are far advanced, the properties will increase in value. The Normanby lode is generally large, and contains patches of rich ore. Of course, the works up to the present time being merely superficial, it is impossible to say what the property will turn out; but from the richness of the surrounding country, I should say that there could hardly be any doubt about the value of the mine. My own impression is that the permanence of any of these many properties will depend upon the character of the primary rock, inasmuch as the lodes hit are generally strong and copper-bearing in their nature, and if at a depth they are found to exist in the proper matrix, and to contain the usual and necessary feeders, the future of this district is a bright one. This much for the present about copper.

The carrying on of the railway to Stanthorpe will be the means of opening up a large extent of tin country in that district, both in Queensland and New South Wales, as the richest tin properties in the latter place are immediately over the Queensland border, as well as many poorer ones that have been abandoned for want of easy carriage. Besides the new gold discoveries in the Stanthorpe district I wrote you about in a former letter, there have been two later, within 25 miles of Stanthorpe, splendid gold-bearing reefs, at a place called Sikedale. More about this at a future time. I see that Capt. Joe Pryor is coming out; as he is an acquaintance of mine I am in hopes of meeting him and accompanying him over some of the Queensland copper fields. I ment to have given you a few hints about emigration, and will do so in my next.

J. VIVIAN WILLIAMS, Mining Surveyor.

Maryborough, Queensland, September.

PUBLIC COMPANIES IN THE FUTURE.

SIR,—In writing on this subject I shall endeavour to avoid the extreme which on the one side would discard everything which has the name of "mine" attached to it, and on the other would try to screen every enormity which has been committed under the mining system. That the public have had much cause of complaint, and good reason to distrust mines both foreign and British, it would be nonsense to dispute; but that mining fairly conducted (and more especially home mining) is a legitimate, profitable, and necessary occupation I will not question the common sense of your readers to argue. To point out where some of the greatest mistakes have been made in the past, and how they may be avoided in the future, is the object of this letter. I take it that the dulness in mining which has existed for some considerable time past is not peculiar to that important branch of industry. What has affected more or less every business in the country is much more political than economic, and with a return to a satisfactory peace in the East of Europe the public will open their purse-strings, and mining will in all probability be one of the first things to benefit. But will it be on the same system as heretofore? It may be hoped not. But if not, in what respect is it to differ? One great improvement would be made if when an undoubtedly valuable mine is discovered there were not quite so many rich (?) mines in its immediate vicinity. What can be more absurd than to suppose that a lode branches out like the points on a mariner's compass, and that the very kernel of the wealth of the district must surely be at every place where a new mine is started. It is a well-known fact that as much money was lost in the surroundings of the celebrated Devon Great Consols as was made in its discovery, and what is true of this great property has been true of nearly every successful mine since that time. I should be loth to contend that there are no exceptions, and most important ones; but until some preparatory work has been done to prove whether or not there is a fair mining chance of success the formation of a company, with a large capital to squander upon the mere digging of holes in the ground, is both unfair and impolitic.

One of the first things in the future should be to see that a working capital, substantial and equal to thoroughly develope a mine, is created. More good mines have been ruined by the comparative smallness of means than from any other cause. There are often very good reasons for forming a mine into a company. Sometimes it has already developed into a valuable producing property, and only wants more capital to greatly increase its yield; at other times it requires everything to be done; but the great desideratum in each case is a sufficiency of the "sinews of war." But it may be argued, surely some of the enormous amounts subscribed during the great mining epoch of a few years since ought to have afforded means to have thoroughly tested or worked anything. Yes, if a proper proportion had been working capital; but, unfortunately, this was the very thing that was neglected, and the untimely collapse or an appeal for new capital was the consequence. This leads, as will be seen, to the usual concomitant of a small working capital—large promotion fees. Very few of our best companies could stand the immense sums that have been paid away in this shape, and upon which interest has to be earned; and how is it possible that an undeveloped concern can be expected to do it when all its resources lie hidden behind the necessary expenditure of a large amount of time, labour, and capital? Every company which is brought before the public, however, represents much thought, considerable outlay, and a certain amount of risk which it is perfectly right should have a fair compensation. What is contended for is not that gentlemen who make themselves responsible for the floating of a company should stand the risk without having a good chance of making a profit, but that they should confine their profits to something like reasonable proportions. I take it that no business man would advocate the policy of a gentleman of my acquaintance, who brought out a large company without admitting that bugbear of mining, promotion money, into it, and put 20,000*l.* hard cash into the concern, and who lost his money without having gained anyone's sympathy for his generous vindication of a mistaken principle. But what is, perhaps, one of the most unsatisfactory things in connection with companies is that individual shareholders have such a little voice in the transaction of its business. Meetings are held at too great intervals between, and it is a fact that sometimes the only two periods that shareholders have been called together is at the statutory meeting and the winding up. I am disposed to think that it would be a great improvement upon the present system if monthly or quarterly meetings were introduced. The wise man says that "in the multitude of council there is wisdom," and it is doubtful if directors would not gain the greater confidence of shareholders, and be very materially helped in their arduous duties at times, if they were to take the sense of other business men on important matters, instead of relying so much on their own over-taxed powers. However this may be, one thing is certain—that shareholders would be much more interested in the progress of a concern, and would be much more likely to extend help in case of need, than they are under the existing system.—79, *Cornhill, E.C., Jan.* 23. M. F. DORMER.

HOME INDUSTRIES—NATIONAL WEALTH.—No. II.

SIR,—In mentioning luxuries in their introduction as a source of wealth we are sorry to say there are some serious objections to be taken. Notably the protecting of game, and reserving for it the lands required by man. Thousands of acres, some of it the very garden of the neighbourhoods in which situated, as to to capability is now rendered useless, except as to the growth of wood and the gamekeeper's employment, also the production of a pheasant 4 lbs. in weight instead of a sheep of 80 or 100 lbs. The non-employment of the sons of the soil, together with the frequent and miserable prosecutions of the poacher, thereby increasing the county rates, render this luxury a decided national loss, and we hope the time may not be far distant when the abominable Game Laws may be abolished.

The two great industries named—tin mining and agriculture—were probably more recent than that of iron. At what date Vulcan forged the first piece of iron the chronicler does not state. Workers in iron, however, were mentioned at a very early date. Possibly all the nails used in building the ark were not made from the tree, and it is difficult to see how the great wall of China was built without iron tools. The date concerning each of these great undertakings being said to be nearly the same. The great iron age, however, may be considered to have commenced but a few years ago—say, two generations only. The demand for the mineral was quickly followed by supply, and instead of charcoal being used in its manufacture the coal mines were opened. Ironstone being found near to these coal beds rendered its production comparatively cheap. Railways, iron ships, iron bridges, and even iron houses increased the consumption to a prodigious extent, and very soon it became one of the leading manufactures of the land, subject to fluctuations of a very grave nature. The industry has, nevertheless, been very profitable. Large orders here, too, have caused panic prices, chiefly on account of excessive wages caused by strikes, &c., masters being compelled to fulfil their contracts at a loss. The remnant of production has been forced up; other countries are now competing with our own, Belgium and America being prominent in the market. The chief part of the railways at home are completed; wear and tear have, however, always to be provided for, as well as a hope that foreign orders may soon be received. This, however, can scarcely be expected until the grip of the Romanoff is removed from the throat of his weak neighbour. France, it is said, is about to construct 10,000 miles more of railway whatever may be done by other continental powers. With regard to war, it is evident our neighbours are quite aware of the benefits of peace and home industry. The recuperative power of France is astounding. During the last century her foreign and frightful civil wars, her struggle between Cesarism, Ultramontanism, and liberty, yet with the enormous indemnity paid to Germany only a few years ago, her trade and commerce now stand foremost in Europe. The building of 10,000 miles of railway will require no capital from abroad, and an investment for the savings of the frugal peasant, as well as the prosperous tradesman, will be created. We hope Russia, Turkey, Austria, and other continental powers may take the examples offered by France, which we believe succeeded in the bloodless campaign of 1877 in winning the greatest and most profitable victory she ever achieved. More mortifying to priests and would-be Cesars than the loss of Alsace and Loraine. This bloodless campaign fought by the people obtained for them a victory, not only beneficial to themselves, but must also have a salutary effect on other continental powers, which may, we hope, at no distant period lead to an improvement in trade generally, and especially that of mining. Lead, silver, copper, and coal are also products which are essential for daily use, and are now affording employment to masses of the people. The prosperity or otherwise of these industries are quickly felt in the respective districts in which they are situated.

New mining fields are awaiting the attention of capitalists at home, and we are glad to learn that in East Cornwall the silver-producing lodes are being worked with success. Stretching from Callington to the Tamar are several of these lodes, which have produced some of the richest silver ores ever found here. The spirited enterprise of boring the tunnel through Kit Hill is one which demands attention. Large grants of mining ground have, we are informed, been conceded to the company, and doubtless immense quantities of silver, copper, arsenic, and tin also will be obtained. Lead ore is known also to exist near these grants; the cheaper working of such lodes will be greatly facilitated by the construction of this tunnel, which when completed will open up ground for mining which cannot become exhausted for generations to come. Hoping your readers may not be tired of this scribble, we hope to complete the letter at some future time. T. VOSPER.

Finsbury Chambers, London Wall, Jan. 23.

JOINT-STOCK ENTERPRISE.

SIR,—Joint stock associations are of the utmost importance in fostering the trade and commerce and in guaranteeing power and solidity to enterprises, institutions, and associations conducting the business and finance of this once thriving, though now, unhappily, paralysed, country and people. In banking, finance, mining, railway, shipping, manufacture, trading, and most other enterprising pursuits the combination of the multitude is preferable to the action of individuals. Hence a wonderful expansion has been witnessed in the progress of joint stock companies since the introduction of the Limited Liability Act in 1862, yet this Act is open to many and grievous abuses, and if unchecked they will inflict far greater injuries and injustices than all the good and advantages that can possibly spring from a wise and judicious application of its principles in their fullest integrity. The Act, since amended, is too elastic, and to show its varied direction we may mention that 12,879 companies proposed to raise 1,590,180,857*l.*, being twice the national indebtedness, and over 106 millions sterling annually since the passing of the Act 15 years ago. Again, over this period companies have wholly collapsed at their very birth, from pure inanition, capitalised at 538,589,856*l.*, yet the promoters got 15,370,251*l.* paid up, and which it is needless to add was lost to subscribers. Over the same period various companies with sparks of vitality at starting have ceased to exist, capitalised at 513,118,575*l.*, and of which no less than 113,171,787*l.* was paid up and sacrificed, together with vast sums in costs of winding up. Of those still in existence, full one moiety of which are unquestionably selling at a discount, if really not insolvent, the sum of 705,444,852*l.* has been capitalised, and positively 43½ per cent. of the money absolutely paid up—say, 307,108,446*l.*; while we apprehend that at least 50 per cent. of this latter sum has been pocketed as premiums to vendors and promoters for the transfer of alleged valuable properties and businesses that would have succumbed but for the aid of the additional capital thus infused into their support.

That these startling losses have sprung from the cupidity of needy vendors and avaricous promotors and concoctors of companies there can be no possible question or doubt, for, as a rule, the possessors of sound, prosperous, and expansive manufacturies, trading, and commercial concerns, or proprietors of valuable, profitable, and approved mines, do not part with them upon philanthropic principles at the moment of fresh discoveries, increased promise, and early realisation of important pioneer points in the development. On the contrary, owners of valuable mines are only too prone to keep them, and in general we find that mines introduced upon the limited liability principle are those which miners have abandoned, yet left some evidence or trace of minerals in the lodes unwrought, still of a character to denote that costs of extraction will far exceed the money worth when realised. These sparkling "gems" for promotors manipulation are usually loaded with two-thirds up to seven-eighths of the capitalised company as premiums, or, as the milliferous phraseology of the carefully toned prospectus states vendors' consideration for the assignment to the company. These assignments usually consist of a grant or lease from the landlord to mine for minerals at a stated royalty, and cost simply the lawyers' fees. In course of time the projected company agrees to purchase in cash—a sum frequently more than the freehold is worth—and a large amount of paid-up shares; this right ceded by the landlord free from impost otherwise than the dues.

Without becoming antagonistic to either the promotors or vendors of the subjoined companies, we select as examples ten limited mines upon which 550,000*l.* is capitalised—one of 20,000*l.*, loaded with 50 per cent. vendors; two of 30,000*l.*, 66⅔ and 50 per cent.; one of 40,000*l.*, 66⅔ per cent.; one of 50,000*l.*, 80 per cent.; three of 60,000*l.*, 50 up to 75 per cent.; and two of 100,000*l.* loaded with 50 and 70 per cent. respectively. Thus 550,000*l.* is capitalised with a working capital, even when fully subscribed, of 210,000*l.* only. Three of these companies have paid dividends of 3000*l.*, 2500*l.*, and 6105*l.* out of "capital," and another a solitary dividend of 1875*l.*; this sells at 40 per cent. discount. It is a mistake to capitalise vendors' and promoters' free shares. The premium is not capital and from the nature of all speculative enterprises it is essentially a floating and shifting market price, dependent on ever-changing inherent worth, coupled with supply and demand for shares. As at present manipulated, limited liability mining companies partake more of borrowed finance than legitimate mining expenditure. There are many fashionable circular and pamphlet mines loudly advocated, and of which it is treason even to whisper a query as to their position, prospects, or value. We cannot ourselves (pray forgive the admission) see the all mighty advantage of changing Her Majesty's sovereigns into such shares.

There is a mine in Wales called Lisburne, the shares in which are 400 in number, 18*l.* 15*s.* called up, and marketable at about 80*l.* per share. The dividends over a series of years have amounted to 582*l.* 10*s.* per share, and recently at a distance of 200 fathoms west of all existing workings on the lodes a cross-cut has been extended north into high ground, and a most valuable lode of lead ore laid open—the whole width of the level being ore—all but pure, and requiring little or no dressing, while in the opinion of practical authorities there are strong probabilities of yet further dividends of 582*l.* 10*s.* per share, yet there is no puff in this mine, and the Messrs. Taylor and Sons do not deem it necessary to send out a million of circulars to acquaint the public of the fact, or to enlist purchasers of shares. Good mines speak for themselves. Again, there are the Hultafall, the Pateley Bridge, West Pateley Bridge, East and West Craven Moor, Eliza Consols, Mellanear, Bronfloyd, Tyn-y-Fron, Peevor, and Agar that will shortly speak for themselves; yet there is a wide difference and scope for profitable investment even in these, for they each and all differ in their inherent worth and respective present and prospective chances of growing returns and dividends, which practical experience can alone point out.

R. TREDINNICK.
Consulting and Advising Mining Engineer.

Exchange, 66, Coleman-street, London, Jan. 17.

THE MINERAL RESOURCES OF IRELAND—No. 1.

SIR,—Having had some experience in Ireland I am anxious to communicate to your readers the substance of my notes and observations on the mineral riches of that country; and, though your correspondents have from time to time ably described Ireland as a splendid field for enterprise, I am of opinion the matter should be revived and kept frequently before the investing public. That Ireland is neglected by the enterprising mining men of this country is a fact, and, though I admire the spirit which animates Englishmen to penetrate the most remote regions of the globe, and win from the earth her hidden treasures, I fail to comprehend how it is that a mineral field such as we see in Ireland receives so little attention, even though mines that English skill and capital are now engaged in developing in far away and foreign lands are not of such promise as some to be seen in Ireland. I make these statements not from mere rumour, but from personal observations in America and the southern countries of Europe. I will first notice the south-west of the county Cork, commencing with the Glandore district.

The formation of the Glandore mining district is carboniferous slate, and its most important feature is a channel of highly mineralised ground running some 20° south of east and north of west, and which extends from near the village of Leap—eight miles from Skibbereen, eastward to Rory Glen, a distance of three miles. Several east and west quartz and copper ore lodes drop into this great lode at intervals along its course, and have served as tributories or feeders. The minerals of value hitherto discovered in this district are manganese, iron, and copper ores. The manganese in places has been found in great abundance, and of which there are three varieties. Pyrolmite, the binoxide of manganese (MnO_2), containing when pure manganese 63 per cent., and oxygen 37 per cent. Psilomelin, a hydrous peroxide of manganese (Mn_2O_3HO), which, however, contains baryta and other impurities, and, therefore, various in composition; and magnatite, also a hydrated sesquoxide of manganese ($Mn_2O_3H_2O$), containing manganese 62·5 per cent., oxygen 27·5, and water 10 per cent. The iron ore occurs associated with the manganese, or in separate and alternate beds—it is that variety known as limonite, hydrated peroxide of iron ($2Fe_2O_3 3H_2O$), and contains metallic iron about 60 per cent.

The copper ores are found most abundant where the east and west lodes come in contact with the great manganese and iron range. Copper, however, penetrates the whole mass of this great lode, varying from traces to 1·5 and 2 per cent. in the manganese, iron, gossan, and quartz gangue of the lode. The varieties of copper obtainable are cuprite, red oxide of copper (Cu_2O), composed of, when pure copper, 88·8 per cent., and oxygen 11·2 per cent.—native or metallic copper. Redruthite, copper glance (Cu_2S), containing copper 79·8 per cent., and sulphur 20·2 per cent.; also copper pyrites, a double sulphide of copper and iron ($Cu_2SFe_2S_3$), composed of copper 32·5 per cent.; iron, 31·25; and sulphur, 36 per cent.

The Glandore manganese, iron, and copper ore mines are situated one mile from the beautiful and commodious harbour of the same name. They are the most productive yet discovered on the great metallic channel just described. These mines were worked by local enterprise, and at a good profit, for about 30 years, and manganese ores of the already-named varieties obtained from a bed of cornstone in a state of decomposition, and in one place 15 fms. wide. Near the surface the ores occur in regular masses or beds, generally compact, but stalactitic and betroidal in the fissures, which are often numerous, in the most productive parts. Deeper down, however, a well-defined and vertical lode of iron and manganese, 20 to 30 ft. wide, has been opened on. The limonite is the most abundant, and in some of the lower workings quartz with copper and iron pyrites has been found in quantities. Such was the experience up to 1870, when some valuable discoveries of ruby copper were made in a portion of the lode east of and immediately adjoining the manganese and iron mines. Capital, however, was never subscribed for extracting the manganese, iron, or copper ores below the water-level—though all three minerals abound there in sufficiently large quantities to justify vigorous operations.

From the general dissemination of copper through the manganese, iron, gossan, and gangue of the lode and its increase in the deeper workings I have little doubt the manganese and iron give place to large and valuable courses of copper ore in depth. I am, therefore, of opinion that a deep and systematic working of this great lode would open up valuable copper ore mines, also for a long time to come quantities of good manganese may be obtained; but the iron would only be of secondary consideration, and would be worked in connection with the getting of the manganese ores.

Variegated copper pyrites and carbonate of copper were discovered in the roadway from Leap to Glandore, on the shores of the Glandore Harbour, and near to the Union Hill Bridge. A level was driven 6 or 8 fms. east on the course of the quartz vein enclosing the copper, and some beautiful samples obtained; but, as this lode forms a junction with the manganese and iron lode near the present workings, it is at such a point a large deposit of copper ore may be expected to exist.

Near Kilfinnen Castle, east of the village of Glandore, the outcrop of a quartz and copper pyrites lode is seen in the rocks of the coast. It is an east and west lode, 6 ft. to 10 ft. wide. It yields good spots of ore, but has never been proved below the surface, though

the indications are favourable. On the Kilfinnen estate also nodules and boulders of manganese and iron ores are widely distributed over the surface, and give rise to the belief in the existence of lodes or deposits of these minerals in the immediate neighbourhood.

The Rory Glen Manganese Mines are situated 2½ miles south-east of the Glandore Mines, and on the same run of mineralised ground. They were worked for some years to a profit; but, like Glandore, have never been proved below the water-level. I have detected traces of copper in the iron and gangue of the lode there also, proving the great lode to be cupriferous throughout. The bin and sesqui oxides of manganese are the ores obtainable at the Rory Glen Mines. Limonite is also obtainable, but in small quantities. In commerce the value of manganese is generally determined from the amount of (MnO_2) contained in the ores. Like the Glandore Mines, the products of the mines here noticed were shipped away from the Glandore Harbour to Liverpool and Garston, where they met a ready sale, and were employed with chloride of sodium and slacked lime in the manufacture of chloride of lime, used for bleaching purposes. To the south of the City of Roscarbery, one mile east of the Rory Glen Mines, the oxides of manganese and iron were also discovered under similar conditions to the ores of the above mines. The locality, however, has never been explored, though the surface indications are good.

Besides those already named there are other proofs of the cupriferous nature of the Glandore district, and, perhaps, one of the most striking is the fact that the peat from a valley that drains the mines was cut, dried, and burned for the ashes, which was afterwards sold for the copper it contained. THOMAS TONKIN.

Birmingham, Jan. 23.

ROOKHOPE MINING COMPANY.

SIR,—I shall be glad if the directors or secretary of this company will reply to the following questions:—1. Did the captain of the Derwent Mines inspect the Rookhope Mines a few weeks ago, and did his report reflect seriously on the management, and has that report been suppressed? If not, what has become of it?—2. Was the ore dresser, who at the late meeting of shareholders declared his ability to turn out 80 tons per month of dressed ore with the existing machinery, dismissed, and a foreigner engaged to fill his place, who by his scientific operations reduced the monthly quantities of dressed ore from 50 tons to 17 tons?—3. Did the directors sanction during the foreigner's management of the dressing department the erection of costly machinery, which, so far as its adaptability to Rookhope is concerned, might as well be at the bottom of the sea?—4. Was the managing agent consulted on these measures, and did they receive his approval?—5. Was not the effect of these and other measures to reduce the price of shares from 27s. 6d. to 17s. 6d.?—6. Is it a fact that they have received from the North the strongest protests against their management of this mine? OBSERVER.

ROOKHOPE LEAD MINE, AND ITS MANAGEMENT.

SIR,—In last week's Journal "A Shareholder" in an article remarks:—

The explanations given by Messrs. Watson, in last week's Journal, respecting the non-fulfilment of the promises made at the last meeting of this company have not come a moment too soon. There are many surmisings in the North affecting the directors' management of this mine; in fact, I heard a competent authority state that it was not managed for the benefit of the general shareholders. I regret to say there are some awkward facts which lend much support to this opinion.

I entirely agree with every word in the article referred to, inasmuch as I was induced entirely from these glowing representations made as to the future prospects of early and continuous dividends, and largely increased samplings of ore, to purchase a considerable number of shares on a rising market, on the faith of such representations, and what are the real facts at the present time?

In the directors' report issued to the shareholders previous to the meeting of Oct. 4 in the second paragraph it is stated:—

For the present month (September) there have been sampled 50 tons. Third paragraph—Attention is being given to the dressing machinery for the purpose of rendering it more efficient for treating a larger quantity of stuff, and it is hoped that in a short time the returns will be at least doubled. Fourth paragraph—The 42 level will be under the rich winze in the 25 in two months, and at this point a great improvement in the lode may be expected. Your directors feel justified, therefore, in congratulating you on possessing a good and substantial property, which will pay well, though to what extent will depend much on the prices obtained for the ore.

In the observations made by the Chairman at the meeting (*vide* Supplement to the Journal, Oct. 6, page 1107):—

Since we have taken charge of the mine we have discovered in many places that as much lead is left standing there as has been taken away, so that I may fairly say, repeating the words of our agent, that we have at the present moment reserves sufficient to last 20 years to come, treating the ore at the rate of 100 tons per month, provided always that we have adequate dressing machinery.

The secretary (Mr. Murchison) here explained that—

Mr. Blenkiron certainly said 20 years when we met him at the mines last month. It was his own volunteered statement. He also said that he could supply stuff for 100 tons of ore per month if he could dress it.

The Chairman observed in continuation:—

I do not wish to colour this statement in any way; and, therefore, I will confine myself to the exact wording of the report, for which both the directors and agent must, of course, hold themselves responsible.

Again:—

We are about to engage the services of a gentleman, believed to be of high attainments, as surface manager and superintendent of dressing-floors. He is a young man who is desirous of pushing his way, and at an interview we had with him he afforded us complete satisfaction. He is used to works of a very much larger and more modern character, but he has stated that with the addition of some sieves and grates, and a better division or sorting of the orestuff, all of which will not cost more than 100*l.*, he will be able with the present machinery to dress, in November next, about 80 tons per month. (Hear, hear.) And the agent has said that if he can dress 80 tons he can keep him supplied with that quantity: 80 tons a month would yield upon our present limited capital a return of 30 per cent., a result which I am sure will be gratifying to all concerned. (Hear, hear.) The alterations and improvements that he mentioned are ordered to be made, and will be on the spot very shortly, so that we are very sanguine of a great imdrovement in the dressing, and the quantity of ore treated, taking place almost immediately.

In concluding his remarks, the Chairman said:—

If in the course of time we can see our way to working the entire sett, I cannot help thinking that we have before us a future second to none in the kingdom. There is a vast amount of virgin ground between the two mines, and in my opinion we may reasonably expect that when the whole of that is opened up the yield of ore will average between 400 and 500 tons per month. At present, however, our exertions are enterely confined to Stotsfield Burn, and will be until that mine is paying dividends and forming a reserve fund. (Hear, hear, and applause.)

I give these particulars *in extenso*, word for word, for the reason that the secretary, only a few days having elapsed, flatly contradicted my assertion that a promise had been held out and believed in that 80 tons of ore would most certainly be sampled in November. I confidently ask of any shareholder, whether present at the meeting or not, whether he has not been most grievously and vexatiously disappointed in the non-fulfilment of the promises made. Nearly four months have elapsed since the last sampling of 50 tons in September, and even without increasing that moderate estimate, 200 tons at least should have been sampled ere now, whereas not one ounce has either been sampled or sold. That there has been gross deception practised is beyond doubt; I care not whether the directors have been bamboozled by their agents or not (it is reported that one of them has been requested to resign). I hold in the words of the Chairman, that the directors and their agent must be held responsible for the statements made by them and non-fulfilled; there can be no doubt or question that something is radically wrong somewhere, and the sooner the matter is explained, and if possible cleared up, the better. Facts are stubborn things; the samplings have ceased, the reports from the mine—with one or two exceptions—have been suppressed for months, the shares in consequence of all this mysteriousness have been seriously depreciated in value; the shareholders are completely in the dark as to the cause of these disappointments, and under such circumstances I advise the shareholders to demand from the directorate at once, and without loss of time, an explicit statement and explanation of the causes which have led to these disappointments. Suspicions are entertained by many that these extravagant representations have been made for a purpose, enhancing for the time the value of the shares, and the results proving disappointing a reaction necessarily occurs with the usual results—that many have been victimised.

To give confidence and assurance to the shareholders the directors should be called upon to confirm, or otherwise, their statements as to the future of the mine; until this is done the mine will remain under a cloud, increased dissatisfaction will be the result, and a want of confidence in the direction and its management. Of one thing I feel certain, that if the shareholders fancy they will receive a dividend during the current year they will be doomed to disappointment. I would strongly recommend under the circumstances that the directors should engage the services of a reliable and competent person to thoroughly inspect the mine, and that a copy of his report should be forwarded to each shareholder; this in itself would convey valuable and reliable information, and would test in no small degree, and it is to be hoped would confirm, the statements already conveyed to the shareholders. ROBERT BYRON.

Lloyd's, Royal Exchange, Jan. 21.

HINGSTON DOWN CONSOLS MINING COMPANY.

SIR,—A paragraph having appeared in last week's Journal somewhat misleading, I beg you will kindly correct the statement that the London office expenses—which include secretary's salary, office rent, printing, stationery, postage, &c.—exceed the whole cost of local management, pursership, clerkship, and underground agency combined. A reference to the accounts for the year ending Oct. 31, 1877, shows that the London office expenses amounted to 149*l.* 11s. 6d., and that local agency, made up as follows—

Capt. James Richards, manager...	per month	£5	5
Capt. T. Richards, agent		8	8
Mr. T. B. Richards, clerk		3	3
Mr. Mathews, engineer		1	1 = £17 17

per month of 13 months amounts to 232*l.* 1s.

London, Jan. 21. T. B. LAWS, Secretary.

HINGSTON DOWN CONSOLS.

SIR,—It appears from a circular issued by the local shareholders in this mine to their fellow-shareholders residing at a distance, that the services of Capt. Richards, of Devon Great Consols, have been unceremoniously dispensed with, a proceeding which, however odd it may seem to strangers, will be but little wondered at by those who are at all acquainted with the characteristic machinations of a certain shifter behind the scenes. In almost every mine with which the same party is connected this course of procedure has been pursued, and I think my information is sufficiently reliable to justify me in stating, with no little degree of certainty, that similar strategy was used only a few years ago to displace Capt. Richards, who, however, being then in full health, with his wonted vigour easily overcame the unmanly callous attempt. At the present moment I regret to hear that he is on a bed of sickness, but the shareholders, I understand, are rallying nobly around him, and he is said to be strongly and cordially supported. Should this subtle design be persisted in I may, perhaps, have to solicit your permission, Sir, to be afforded some little space in the columns of the Journal to make a few further observations, and to adduce some facts that will probably prove somewhat startling to the shareholders in Hingston Down Consols and another mine or two that will be specially mentioned.—*Jan.* 21. INDEX.

GREAT CARADON MINING COMPANY.

SIR,—On reading over the report of the meeting on Friday last I was rather amused at the novel project Mr. Sharp has adopted to make a doubtful meeting of December, 1874, legal by holding it over again, three years afterwards, and presenting the accounts and proposing the same resolutions as were then presented, amongst them one making a call payable, under discount, in January, 1875, ostensibly for the purpose of making a shareholder liable for such call. It should not have required the memory of Mr. Sharp to satisfy anyone as to who was present at that meeting, as I believe it is usual to take down the names of shareholders attending meetings for entry in the cost-book, it not being necessary that they should sign the proceedings of such meeting, the Chairman's signature being sufficient for all purposes. I observe the mine is to be wound-up—a good thing, too, if this is the style of conducting the business of the company, but are not the shareholders somewhat over generous in appointing the secretary liquidator, his remuneration to be a continuation of his salary? I have known the winding-up of mining companies to extend over years. Mr. Sharp's cantankerous shareholder would do well to consider how far it would be best to his interest to file a petition to wind-up the mine in the Stannaries Court, he would probably have no more to pay, and seeing that the balance against the mine is only 500*l.*, or thereabouts, he would doubtless find the winding-up more speedy than by the proposed liquidator.—*Jan.* 22. A MINER.

GREAT WEST VAN.

SIR,—Allow me a small space in the next issue of your valuable Journal to state the facts relating to this mine. Having no interest in it, nor ever having had any, directly or indirectly, yet knowing the mine before Mr. Ward heard of it, I can give an opinion without prejudice. During the mania, for mania we must consider it, Esgair Lle Mine was held by one man, Mr. Stephen Barker, of Birmingham. It was inspected for a wealthy party on the Stock Exchange by Mr. Taylor, a son and nephew of the Messrs. Taylor, of Queen-street-place. So highly did this gentleman think of the property that he stipulated for a portion of the mine at a *pro rata* price, the purchase-money being 25,000*l.* Mr. Taylor had his interest, which was afterwards bought by his co-partners in the mine. The whole of the shares offered to the public were not subscribed for, hence the necessity of raising new capital or forming a new company. The mine when first bought did not look better than on the day the late promoter and secretary visited the mine and clenched the offer of the mine, plant and lead ores at surface and underground; in fact, the best lode of lead and the most promising for continuance was in the 34 fm. level, west of old engine-shaft. On this large and good lode further improvements in the machinery and dressing-floors a considerable amount of money subscribed to the company as Great West Van was expended. Unfortunately the lode did not hold so rich nor realise the hopes placed on it; it became comparatively poor from being squeezed and split up in the 46 fm. level.

The mine was visited during its working as Great West Van by agents from Cornwall of unquestionable judgment and integrity, and who thought so highly of it that they became anxious buyers of the shares at par. The 18,000 so-called free shares by Mr. Ward were not free shares at all, but represented 36,000*l.* capital expended by the Esgair Lle Company before the late Mr. Greene became the purchaser of the mine. What does Mr. Ward mean? Have his words any meaning, or are they a jumble without sense? He, Mr. Ward, was perfectly well aware of all the conditions accompanying the purchase and reconstruction of the company. Nay, he and his client, Mr. Greene, got all the free shares that were issued. Mr. Ward writes under date June 27, 1874, in respect to his 313 free shares by virtue of his being a subscriber for 1000 shares, and broker to the company, "he will hold them in trust," yet on July 4 (the following month) we find two transfers of 100 shares each consideration 2*l.* per share registered, which shares are the very shares he professes to hold in trust, and Mr. Ward receives a transfer from the secretary and promoter, Mr. Greene, of 113 shares. Will Mr. Ward explain why he did not as broker to the company hand over the 400*l.* he received for these shares? Mr. Ward's statements are all *ex parte*, but Mr. Greene's confidential clerk never saw or heard one word of the existence of any such letters as printed in your columns, and evidence points otherwise. Mr. Ward and the late Mr. Greene had large and numerous transactions together.

The dividends which Mr. Ward so virtuously condemns Mr. Ward promoted (against the wish of the directors) by giving Mr. Greene his proxy to attend the meeting on the mine. The dividend was proposed and passed by the shareholders, the secretary supporting the proposition. Mr. Ward ignores common sense when he pretends to say he is not the guilty party.

The ruin of the company. Who is the culprit here? Has Mr. Ward endeavoured to meet the further development by subscribing further capital as preference shares or debentures, or has he has not sought to put the mine into liquidation? Seeing, then, the senseless conduct, whatever the secret motive may be of such acts, we have to thank the large holders, who determined that if liquidation should come it should be in the hands of a firm of standing. That the property should not be sacrificed, and, if resuscitated, all honest straightforward shareholders may come in again at the liquidators sale price.

In addition to the 25,000*l.* paid for Esgair Lle to Mr. Barker that company expended from 7000*l.* to 8000*l.* on the mine. The liquidator of Esgair Lle, in selling to Mr. Matthew Greene included an additional 490 acres of land, on which had been spent 2000*l.* Thus, Great West Van represents two mines—a length of a mile and a-half. All the capital of the late company has been fairly and justly expended on the mine. The 18,000 shares were taken by the former shareholders in payment for the purchase of the mine, and, with few exceptions, are still held by them. Shareholders have only to thank Mr. Ward who supposes proprietors give away property for brokers' advantage.

One word more *re* the dividend which Mr. Ward so much condemns, and yet was so anxious to possess—he could not get, &c. There was a balance of account between the broker and his client.

Your readers will conclude a very unjust attempt is made to besmear reputations hitherto unassailed—men who travelled thousand of miles in the interests of the company, and devoted weeks at a time to the neglect of other things that the broker in his office and his clients may sit at ease. What thanks, ye ingrates!

Jan. 12. FAIR PLAY.

WHEAL LIVINGSTONE.

SIR,—I see in last week's Journal a paragraph on a mine under the above name. I want to know its precise locality. It is said to be near the base of the Beacon, St. Agnes, but I do not find the name in Mr. Symons's mining map of that parish. I presume, therefore, that it is a surname of some mine which is better known by its other name. The district is a good one, excelled by few, so that the writer had no need to be ashamed to give its previous cognomen. As I know all the mines I could speak of its qualities if the writer, through the Journal, will give me its old name. There are several mines around the Beacon, which of them is Wheal Livingstone? It is a far-fetched name, and so is Wheal Devonshire, by the same hill.—*Redruth, Jan.* 22. ENQUIRER.

NORTH LAXEY, AND ITS MANAGEMENT.

SIR,—I was much pleased to read in last week's Journal Mr. Murchison's thoroughly outspoken report and opinion on the position of this mine and its management, and as I consider we have arrived at that point when some important step must be taken to prevent the mine from sinking into oblivion I avail myself of your columns for expressing to my fellow-shareholders my earnest and sincere approval of the proposal by the London directors for the removal of Capt. Rowe as the local manager of the mine. I did think at one time that Capt. Rowe was an ill-used and much maligned person, but circumstances which have occurred of recent date have tended greatly to alter that opinion, and at the present time I firmly believe that it would be quite satisfactory (if not even rejoiced at) to the great bulk of the North Laxey shareholders if he quietly withdrew and allowed someone more pleasing to their understanding to fill his place.

I was a shareholder in Great North Laxey for a considerable time prior to its merging into North Laxey, and from that time to this I have held on contributing my share to the demands of the mine (?), waiting and hoping for the bright and happy future, which has always been just dawning, but has never lengthened out into anything more than a mist, which, unfortunately, happens to be our present happy position. At our last annual meeting we were promised by Captain Rowe, if not immediate dividends, at least a prospect of something like a tangible appearance of them; but, alas! "what a falling off is there." Nothing now remains for us but to balance up, and take stock what our respective losses in the concern are, some more and some less. I think it would be well for each and all of us to pause at this point, take stock of our position, and study well the cause of all this failure, and before proceeding further consider the course we shall take. Firstly, Capt. Plummer's report informs us of our position in and at the mine, and our worthy Secretary explains our financial condition. Neither of them are cheering. So from this we pass on to the cause of our non-success. Is it the mine? Well, if any reliance is to be placed on the statements of old men who have been miners all their lives, and many who have worked in North Laxey for a long number of years, and who ought to have some practical knowledge of the mine and its surroundings, it is not, as one and all are agreed that the mine is both rich and fertile if only worked properly. Is it the manager? To this question Mr. Murchison's letter, in last Saturday's Journal, is in a great part an answer. He there tells us that he has had the greatest difficulty in getting returns of work done and accounts generally from Capt. Rowe, and we all know who have read the Journal for any length of time what complaints have appeared in reference to the omission of reports, which I presume have never been sent.

With reference to this question it requires little study to form a decided opinion upon. If a man is careless in one thing it naturally follows that he will be ditto in others, and if Capt. Rowe has been so negligent as Mr. Murchison, and our own observation informs us he has, we may naturally infer that he is not the right man in the right place. Some of his supporters may argue that his long experience and knowledge of the mine entitles him to some consideration, but I say in reply to that if his experience and knowledge were worth anything at all it ought to have shown itself before this; 25 years is quite long enough to place the affairs of a concern in the hands of a man who brings out nothing as the result. With regard to the third question of our further course of procedure I have come to this conclusion (and I am backed to the extent of between 600 and 700 shares) that until Capt. Rowe withdraws, or the directors resolve upon dismissing him from the local management of the mine, I shall decline to subscribe any more capital towards the continuance of the working of the mine, and if Capt. Rowe is not removed (in accordance with the desire of a large majority of the shareholders) I shall consider, as I have no doubt many other shareholders will do, that the directors will be guilty of a grave breach of trust in retaining him.

I could have said something with reference to the remarks of Messrs. Watson concerning Glencherry, but I consider I shall take up quite sufficient of your valuable space with the foregoing, so I will allow the question to pass for the present. LYNX.

Jan. 23.

NORTH LAXEY MINE, AND ITS MANAGEMENT.

SIR,—I observe from last week's Journal that Mr. Murchison, the London manager of this mine, figures somewhat conspicuously in condemning the local management of Capt. Rowe. Now, Sir, I have been a shareholder in the mine for a number of years, and have had a deal of practical experience in mining. I have visited the mine about four times annually, and on each visit have carefully examined everything above and below ground for my own interests' sake, and I am bound to admit that there is not another mine in the kingdom to my knowledge better and more economically managed for the interests of the shareholders and the opening out of the mine. I question whether it is possible for two men to have exerted themselves more in developing this mine than Capt. Rowe and the resident agent. Mr. Murchison tells us that in addition to himself there are three or four insular shareholders who would like a change in the local management, and the reasons assigned by them, when considered in connection with the insular directors' statement at the meeting, plainly reveals the real cause in the background prompting those few malcontents. Certainly their policy would not, in my opinion, be a beneficial one (if adopted) for the shareholders.

Now, Sir, is it fair that a few shareholders here at a private meeting should entertain the idea for one moment that they represented the views of the whole of the insular shareholders, and considering that those whom they ignored were not only the largest shareholders, but the persons most competent to answer any charges they may have preferred. What many of the shareholders here strongly complain of is the cost, &c., of the London management mainly. By examining the balance-sheet there evidently is just ground for complaint. Doubtless the object Mr. Murchison and Co. are trying to aim at and accomplish, when more fully ventilated, will show to what extent feeling may go for this purpose. A man condemning

the management of a mine he never saw, although boldly asserting that he has been connected with it for over 20 years, seems somewhat ridiculous when such a report as that of Capt. Plummer's is made known. Capt. Plummer's report is considered here a truthful and honest one by practical men; yet Mr. Murchison and party, after selecting a thoroughly independent inspector, seem rather staggered at the commendatory manner in which the local management is spoken of. I am quite willing again to contribute to North Laxey provided the present local management is continued, but not otherwise, and several others I know will do the same. There is a good prospect in North Laxey Mine, and by driving the two bottom levels good results may be safely calculated on.

A MANX MAN.

NORTH LAXEY MINING COMPANY.

SIR,—In considering the proceedings at the special meeting of this company, held on Jan. 10, and after reading Mr. Murchison's statement in the *Mining Journal* of Saturday last, I cannot help coming to the conclusion that those shareholders who wish to retain the present local management can have been but a very short time in the company, can have no idea of the true position of the mine, and can have no regard for its best interests. Many years ago a very strong movement was made by the Manx shareholders (who were then more numerous than at present) to have a change made in the local management, but their wishes were frustrated by the directors and English shareholders supporting Capt. Rowe. Many of the Manx shareholders finding that a change would not be made, sold out: others remained in, and have patiently joined one company after another, and have continuously subscribed their money, always hoping that some of the promises made by Capt. Rowe would be fulfilled. Several shareholders here, for many years, have watched the mine closely, and have had opportunities of knowing much more than the English shareholders, and as the question respecting a change of management was to be again brought forward—but this time by the directors themselves—the Manx shareholders deemed it their duty, by resolutions duly passed, to lay once more before the directors their opinion as to the local management, and the change they considered it most desirable should be made.

I need not go into the debate at the special meeting, as that has been pretty fully reported in your paper, and many of the statements then made fully replied to by Mr. Murchison. The decision has been left in the hands of the directors. They, I trust, will not shirk their duty. They are responsible for the efficient working of the mine, and if they have no confidence in the present local management (their servants) it is their bounden duty, supported as they are by many Manx shareholders, and without doubt by many English shareholders also, to try and remedy the defect. If I might be allowed I would suggest to the directors, for the purpose of ascertaining the feeling of the shareholders generally, that a circular be issued asking every shareholder to state in reply thereto whether he is satisfied with the present local management, or whether he is desirous that an entire change should be made in this department. This would test the matter, and the directors (if not satisfied to take the responsibility upon themselves) would then be in a position to carry out the wishes of the majority of the shareholders, whatever those wishes might be.

Douglas, Isle of Man, Jan. 22. GEORGE MALEY.

NORTH LAXEY MINE.

SIR,—Matters seem to have come to a serious crisis with North Laxey, and I trust that the directors will not hesitate to take very decided steps with regard to the management. I think that the strong expression of opinion from the local shareholders is worthy of every attention, as if any persons beyond the directors may be supposed capable of forming a sound judgment it is those on the spot, who see and hear much more of the interior working of the management than others at a distance. "Where there is smoke there must be fire," in some degree or other; and the very fact of so much capital having been fruitlessly expended should indicate the necessity of trying a change. The circumstance also, of Capt. Rowe's services having been dispensed with at Great Laxey, if true, is not calculated to inspire confidence, and will disincline shareholders to contribute fresh capital to be placed under the same control. Also what Mr. Murchison stated as to the accounts, though apparently pooh-poohed by Capt. Rowe, is by no means unimportant, and is enough to create distrust. At any rate, I should suppose that matters cannot possibly be worse under fresh management than they have been hitherto with two captains to look after the mine. I hope that the directors, answering to the trust reposed in them by the meeting, will not be governed by a misplaced delicacy, but will see their way to appoint one manager, and that a first-rate man.

A SHAREHOLDER NOT AT THE MEETING.

LLANRWST MINE.

SIR,—Having during the last two or three weeks observed in the Journal letters referring to the Llanrwst Mine from Mr. Gould Sharp and his brother Mr. Granville Sharp, stating their inability to procure a reply to their application for an inspecting order for the mine, for the information of your readers I can inform you that I hold a document, which was sent to one of my clients, wherein it is suggested that Capt. Southey (their own mining captain) should be sent to inspect the mine, I put it to any shareholder whether a fair and impartial report would be expected under such circumstances. I herewith enclose, with a request that it may be published for the information of all concerned, a fair and impartial report on the Llanrwst Mine by Capt. John Kendal, a most scientific mining authority, made before the "wretched squabble" referred to by Capt. Knapp, in a recent number of the Journal, had originated. Capt. Kendal not being a paid agent, or in the employ of any party interested in the aforesaid "squabble," his report, it must be admitted, should be taken as a just and impartial one of the mine as it stood on Nov. 16, 1876. In justice to all concerned in this matter, I request the favour of your publishing the foregoing, together with Capt. Kendal's report (enclosed), in your issue.

London, Jan. 18. W. F. RICHARDSON.

LLANRWST.

Special and independent report by Capt. JOHN KENDAL, one of the most scientific mining authorities of the day. Made at the request of a Shareholder.

London, Nov. 16, 1876.—Agreeably to your request, I have made a careful examination of the above-named mining property, and now beg to forward you my report. The mine is situated in a very good lead producing district, and in the midst of several mines, some of which have been worked for many years by private parties, which speaks favourably for their belief in the productiveness of the district. I shall commence with the Prospect shaft, which has been sunk 26 fms. from surface to the adit level on the caunter lode, the lode in bottom of shaft being worth 30 cwts. of lead per fathom. The 10, above adit, is driven east of the shaft 45 fms., the greatest part of this drivage being through productive lead ground. The lode in the forebreast is 4 ft. wide, yielding 35 cwts. of lead ore per fathom, and when the drivage of this level is continued for 40 fms. more it will reach a point 40 fms.* in depth from surface on the lode, as the altitude of the hill is very great at this point. A winze has been sunk 5 fms. behind the before-mentioned forebreast, and is now down 5 fms. below the level; the lode in the same is 3 ft. wide, yielding 35 to 40 cwts. of lead ore per fathom. This is a very important feature, being in advance of the adit level below, so a continuous lode of lead may be expected to the winze. I may also remark that near this winze a large lode of very favourable character and containing lead is standing in the south side of level, and which when driven on will in my opinion prove to be another very profitable lode. The red north and south lode cross the caunter lode a few feet west of winze, but has not been sufficiently developed to prove its value. The adit level is driven east of Prospect shaft 35 fms., through very valuable lead ground. The lode in the forebreast is 3 ft. wide, yielding 40 cwts. of lead ore per fathom; but owing to the escape of gas it is necessary to make the level higher by stoping, in order to give ventilation, but the men will resume working on the forebreast again in a few days. The stope in the back of the level yields 45 cwt. of lead ore per fathom, and I would call your attention to this important part of the mine, which in connection with the before-mentioned winze, sinking in the 10 above, will open out a very valuable section of reserve lead ore ground. In the bottom of adit level, 8 fms. east of Prospect shaft, a winze has been sunk 3 fms. (as far as it could be sunk, owing to the influx of water); the lode yields 50 cwts. of lead ore per fathom. This is also another very important point, as it proves the lode increases in value as depth is attained. For 10 fms. west of Prospect shaft at this level the lode is very wide, yielding 60 cwts. of lead ore per fathom. I shall now speak of the western part of the mine:—The diagonal shaft is sunk 20 fms. from surface, but as water was in the bottom of the shaft I could not value it, but a very good lode is said to be in it, however, for 20 fms. east and for 40 fms. west of this shaft. At the adit level the main lode has been very productive, and the whole length of this latter drivage has been taken away by former workers from surface to adit level, and the lode in the bottom of the level I was told would yield on an average 30 cwts. of lead ore per fathom, but water prevented my seeing the lode for the whole of the length, but the part I saw would yield 30 cwts. of lead ore per fathom, and I have no doubt but that this will prove to be a very valuable and important part of the mine. The main lode is the most productive for lead in this part of the mine, and I am of opinion in depth will yield large quantities of lead, and also in the eastern part of the mine on the caunter lode, judging from the favourable indications and increased value, which I think is fully 30 per cent. better at the adit level than the 10 above; there is every reason to believe that the lode will considerably improve in value as depth is attained. In conclusion, I should advise as you have pumping engine, crusher, &c., for dressing the lead ore, that the same should be got to work as soon as possible, in order to send your lead into the market for sale, and it would then speak for itself, and I must say that you ought to be highly pleased with so great a discovery in a mine, so to speak, as yet in its infancy, and which presents such favourable indications of becoming a permanent, remunerative, and valuable property.—JOHN KENDAL.

* That is to say, the hill rises at this point 40 fms., equal to 240 ft. above the level driven below, and that the lode is standing the whole of that depth.

NEW CONSOLS.

SIR,—The letter of "Another Shareholder," inserted in the Journal of Jan. 12, does not satisfy me that due diligence has been exercised in the winding-up of the affairs of New Consols Mine. If the mine were a cost-book concern I could suppose that there might be some difficulty in collecting the calls made upon the shareholders; but in a limited company, where the capital has been subscribed and expended and all the effects under mortgage, no such difficulty exists. I can see no reason for such delay. I have observed that in most cases the expense of winding-up companies, voluntary and otherwise, are fearfully heavy, and that too little of the realised assets come into the hands of the claimants, as in cases of bankruptcy. In the case of New Consols it is to be feared that not a shilling will come to be divided amongst the unsecured creditors. I have been told that, except the engines, everything at the mine has been converted into money, and that the poor miners have been paid only partially—about 10s. in 1*l*. Some of the property so sold was never paid for by the company. The directors, it appears, went to the extent of their credit in their orders for coals, &c. A worse course of action than that pursued by the directors was, perhaps, never known. Instead of leaving the management in the hands of their competent manager—so called and admitted—they took upon themselves to direct everything, and recklessly ordered expensive works before they were wanted, till all their funds and credit were exhausted. Mr. Rashleigh, the mason who constructed all their buildings, told me that the company owe him hundreds of pounds, and that, therefore, he has not been benefited a shilling by all that he has done, but so far as he could see he would be a loser in money as well as time by his connection with the works. A worse case than this of New Consols I know not, and trust that I never shall.

Jan. 23. A CREDITOR.

MINING PROBABILITIES.

SIR,—The New Year has now fairly opened, there has been time to scan the metal markets and mining events of 1877, and in some measure to gather up the probabilities of 1878. It would be wise to do so under any, or at all events ordinary, circumstances; it is necessary to do so now from the peculiar aspect of the markets and the times. "O tempora mutantur, et mutantum cum illos."

The present period in the commercial world sadly verifies that line of the classic Horace. But although we have passed through a period of depression, there is hope not only for the sanguine but for common-place people. It may be said the bad times are not over yet. Well, we are not passing through the nucleus of the comet, but only the very nebulous tail; and the good English old wife's saying, "It is not all lost that is in danger," is wholesome and opportune to-day. Englishmen have always three standing grievances—"the Weather, the Times, and the Irish." The weather is not unfriendly this winter, and meteorologists say the winter will continue soft and lenient. As to the Irish, they are, however, inscrutable still, fast improving in commerce, agriculture, and thrift, and are growing consumers of British metals, especially tin and lead. But the times are passing on, followed by as much grumbling as ever; yet all the tokens of a probable future, which they scatter as they go, are indicative of better prospects.

There is at last some ground for hope of peace in Eastern Europe and Asia Minor. France has passed through her agony of political peril. Factions in the Iberian Peninsula are becoming united. Prosperity is again dawning upon India. The long maintained depression in the United States of America and British America is, it is believed, concluded, and tokens of reaction have ensued. We will keep in mind the true and sad lines of the unfortunate poet Falkner—

"Our hopes like towering falcons aim,
At objects in an airy height,"

But, nevertheless, we think that modest and moderate men are now catching the inspiration of hope, and believe in a near future of most favourable commercial reaction. When the Nile overflows it makes a desert a marsh of the erst fertile fields of Europe; but when the Nile subsides its waters only flow away, its fertilising material is deposited, and the husbandman is filled with hope and joy by what appeared to be an overwhelming inundation; so the stagnation has pretty well passed in the world of trade and commerce, leaving favourable influences behind it—let us "hope on, hope well, hope to the end."

No classes of Englishmen have more reason to welcome the upspringing light than those interested in mining. You have, Mr. Editor, in your recent article on "Commerce in the Superior Metals," proved to demonstration that the foreign trade of the last year was favourable; but the home trade was depressed, the speculative spirit was quailed, holders of stock were desirous of lessening their reserves, and, of course, that caused our mines to work lazily; but really the year, however dull in other departments, was fairly active in lead mining. The prices of Straits tin, Chili copper bars, Wallaroo copper, &c., are all some 10 to 12½ per cent. lower than last year; but although lead is lower than at its highest point in the year, it maintains fairly steady quotations, which afford encouragement to the miner, mining shareholder, and investor. The markets for mining shares in good lead mines are at this juncture well supported; they have paid good dividends, they are richly productive, and in the absence of speculative action the shares are at such low prices that solid investors are induced to come in. The influence of the late and partly present general commercial depression will keep the quotations of mining shares low for some time, and afford wise men to possess themselves of this sort of property at rates which leave large margins for profit. But the season of low prices may suddenly terminate, and soon, and the opportunity of the capitalist pass away, probably not to return for many years.

Always at such periods as this, for they have been of frequent recurrence during the last 60 years, some mines present great opportunities to investors; this is the case now, especially with lead mines. Let us name, for instance, the Lisburne district, in Cardiganshire, The Lisburne Mines, on a capital under 8000*l*., have paid about a quarter of a million in dividends. Grogwinion, with a shorter history, has been a greater success. Caron, a little to the south of the Lisburne and Grogwinion, is a new project likely to open up a magnificent field of wealth. Seldom in the clay-slate formation have such masses of pure lead been found as by the late Capt. Matthew Francis in Grogwinion, and it is observable at Caron that the lead is of the same quality—the lodes are parallel, and the phenomena, geological and mineralogical, identical throughout. This is a splendid region for investors. A poet of the Sister Country has sung—

"The love that seeks a home,
Where wealth and grandeur shines,
Is like the gloomy gnome,
That dwells in dark cold mines."

But the gnomes have taken themselves to deeper and darker abodes in the lead mines of Cardiganshire, and the light of science, enterprise, industry, and intelligence illuminate the recesses where the "vaunted metal" gleams in reflection to the miners' lamp. Let it be once more said that now is the time to buy for investors in lead mines, and we hope there never will be a time to sell, but that at all seasons for many long years most holders in lead properties will be inclined to stick to their shares.

GEORGE BUDGE.

9, *Gracechurch-street, London, Jan. 23.*

HINGSTON DOWN CONSOLS.

Copy of correspondence between Capt. Richards, of Devon Great Consols, and a section of the Hingston Down Consols directors:—

Devon Great Consols, Jan. 19, 1878.

GENTLEMEN,—I am surprised to find that you have not forwarded me the cheque, as usual, for payment of the costs for the month ending Dec. 22. As the notice of my dismissal from the management states that my services continue to the 19th inst., this taking of the payment of the costs out of my hands casts an imputation which I am entitled to have fully explained. From the position I have held in connection with the company for so many years past, you will pardon my remarking that even supposing the change you ascribe to be necessary was really a just one, it was due to me that I should receive at least three months' notice, and that my position should not be interfered with until the expiration of that period. In giving your reasons for the steps you have deemed it expedient to take in this matter, I shall be glad if you will be as explicit as you conveniently can, as I purpose, in my own justification, to publish the correspondence.

To the Directors. JAMES RICHARDS.

London, 28, Cornhill, Jan. 22.

DEAR SIR,—In reply to yours of the 19th inst., the directors in no way cast the least imputation on your integrity by taking the affairs of the company wholly out of your hands and placing them in your brother's, Mr. Thomas Richards, and beg me to state for your satisfaction that they do so only on your unfortunately being so afflicted as not to be in any way able to do anything in the way of business yourself. (By order of the Board) T. B. LAWS, Secretary.

To Capt. Richards.

Devon Great Consols, Tavistock, Jan. 23.

SIR,—I am in receipt of yours of the 22nd inst., written by order of the directors in reply to my letter of the 19th inst. That reply I must be permitted to say is altogether inconsistent, misleading, and unjust. In proof of this you will do me the favour to draw the attention of Messrs. H. P. Hall and Figgess (the London directors who are at present the only visible movers in the matter) to the following facts:—In the directors' report presented at the general meeting of the company, held on Nov. 28, the following renewal of confidence appears—"Your directors regret the continued illness of Capt. Richards, the manager, at the same time they have every assurance that the property is being well looked after." If this expression of sympathy was sincere and honourable, how, may I ask, could Messrs. Hall and Figgess conscientiously commence so soon after the meeting was over to procure my discharge; the circumstances having in no way changed, the same care and attention being paid to the interests of the company as have been the case up to the date of the meeting when the shareholders were assured that every confidence might be placed in the management of the property? With regard to that portion of your letter conveying the intimation that the affairs of the company have been placed wholly in the hands of my brother, I cannot but observe that this is far from being the case; the authority he is entrusted with being far short of that which for years past had been unreservedly placed in my hands by the original directors. With these few remarks I close this correspondence, reserving other matters of importance until the proper time arrives for placing them fairly and openly before the company. JAMES RICHARDS.

T. B. LAWS, Esq.

Meetings of Public Companies.

WEST CHIVERTON MINING COMPANY.

The general meeting of shareholders was held at the company's offices, Gresham Buildings, Basinghall-street, on Wednesday,

Mr. THOMAS SMITH in the chair.

Mr. GRANVILLE SHARP (the secretary) read the notice convening the meeting, and the minutes of the preceding one, which were confirmed. The statement of accounts was also submitted, showing a profit on the 16 weeks' working of 1678*l*. 11s. 1d., and a balance of assets over liabilities of 2579*l*. 13s. 9d.

The following report was read:—

Jan. 19.—Batters' Engine-shaft: This shaft is now down 7 fms. below the 160, sinking by six men and three boys, at 40*l*. per fathom, a certain bargain, to complete to the 170. About 3 fms. above the present bottom of the shaft the main part of the lode appears to have taken a more perpendicular direction, and is gone down in the footwall or north side of the shaft, from which the water is issuing very freely. In the 160, west of shaft on south lode, the lode is 3 feet wide, and worth 25*l*. per fathom for lead. This has just been communicated with a winze sunk from the 150, which has thoroughly ventilated the bottom part of the mine, and opened up a valuable piece of ground for stoping. The lode in the 160, east of shaft, is 3 ft. wide, worth for lead 10*l*. per fathom. We have opened on the north lode in the 160, west of the cross-cut, west of shaft, 10 fms., where the lode throughout the drivage and in the present end is 2½ ft. wide, and worth for lead and blende 15*l*. per fathom. The lode in the winze in bottom of the 150, west of shaft on north lode, and coming down on the 160 end, is 3 ft. wide, and worth for lead and blende 15*l*. per fathom. In the 150, east of shaft on south lode, the lode is 3½ ft. wide, and worth for lead and blende 10*l*. per fathom. Here we anticipate an improvement shortly as the end advances under the good lode gone down in bottom of the 140, west of Hawke's shaft. We have just communicated the winze from the 140 with this 150 about 3 fms. behind the present end, the lode throughout the sinking being fully 3 ft. wide, and worth for lead and blende 10*l*. per fathom. The lode in the winze sinking below the 120, east of shaft (now down 6 fms.), is 4 ft. wide, and worth 12*l*. per fathom for lead and blende. The 100 cross-cut, north of shaft, is being pushed out with four men, at 6*l*. per fathom. No lode or branch of any importance has yet been intersected. Our bottom level (the 160) is opening out equal to our expectations, and we are pleased to say a profitable piece of ground west from Batters' engine shaft to the present end, a distance of 56 fms., is now laid open for stoping.

Hawke's Engine-shaft: In the 140, east of this shaft, the lode is 4 ft. wide, and worth 6*l*. per fathom for lead. The 130 to drive east of shaft, by six men, at 6*l*. per fathom; lode 3 ft. wide, worth for lead and blende 7*l*. per fathom. The aggregate value of our tutwork bargains, independent of the stopes, is 110*l*. per fathom. This estimate is taken at the present price of lead and blende, which we need not tell you is at a very low ebb, and although the mine is getting deeper, and as a natural consequence more expensive to work, yet should we again get the same price for our mineral as was realised four or five years since, you may with confidence look forward to better results still. During the past four months we have increased our tutwork operations in order the more fully to develope the different parts of the mine, so that they may at some future time be remunerative to all connected with the concern. In conclusion, we may here add that our new dressing machinery is working admirably, and this has enabled us to treat low quality stuff at a profit which would otherwise have been added to the waste burrow that has been for years past accumulating on the mine. There are now employed underground and at surface 480 hands.—RICHARD SOUTHEY, WILLIAM ROBERTS, JAMES MOYLE.

The CHAIRMAN said that as the statement of accounts had been before them several days they had had an opportunity of criticising them, but before asking them to adopt the balance-sheet he would remark that the past year had been the most disastrous on record for mining, and sale after sale, during 1877, the prices had declined. In January, 1877, they were receiving 19*l*. per ton for lead of precisely the same quality as they were compelled to sell in December for 14*l*. 3s. per ton. During the 16 weeks included in the accounts the average price received was 10*l*. 3s. 10d., which was no less than 3*l*. 15s. 8d. below the average of the corresponding period of last year. Blende was also lower, but this had not affected them quite so much, as they had been able to deliver more of the better quality, and they were holding back much which, at a slight advance they were hoping for, they would be able to realise a good profit upon, as all the cost upon it had been paid. They had sold in the four months 2167 tons of ore, which was the largest quantity sold since the committee had been in office, yet the profit realised had been only 1678*l*. 11s. 1d., owing to the increased cost of labour in consequence of the larger amount of mineral turned over. He might tell them to produce this result they turned over 1500 tons of mineral per week; this would give them an idea of the cause of the heavy labour cost, and that they were enabled to achieve so much was due to the efficiency and good working of the new machinery. It had been working continuously ever since it was erected. Of course the work had been arduous, and had taxed to the utmost the energies of the agents. The mine is in as good a position as ever, and the reserves have not been diminished. They were spending a great deal on tutwork—indeed, their tutwork cost had been 200*l*. more in the last four months than it was in the preceding five months, but they used every endeavour to back up the agents when they saw that they were exercising true economy. The working machinery and plant were in good order, and they did not see any necessity at present for any increased outlay in this direction. The accounts might not look quite so well as they had sometimes, but they were in a thoroughly sound financial position. They had a balance of 2579*l*. 13s. 9d. after paying the overdraft at the bank of 3036*l*. 15s. 6d. They had been much delayed by bad weather and tides in shipping the ore after being sold, and, of course, they could not expect to be paid before delivery. Under all circumstances the directors thought they were quite justified in recommending a dividend of 10s. per share, payable on Feb. 14, by which day they should have cash paid to meet it.

A SHAREHOLDER expressed the hope that there was no prospect of any more bad debts from failures of smelters; and wished to know how the directors' proposition had worked to sell for cash only, and allow a discount?

The CHAIRMAN hoped that there was no probability of further loss. They hoped that the bad had been weeded out, and that those which remained were thoroughly sound. They much regretted the failure of a smelter, even if they lost no money by the failure, because it not only deprived them of buyers but diminished the competition for their ores. As to the directors' proposition it was a failure, they were obliged to continue to sell as before, and all they could do was to use their best efforts to ascertain the solvency of those to whom they sold.

The SECRETARY added that all who now purchased their ores were undoubtedly first-class houses. One of these firms had distinctly declined to tender for their lead except upon their customary terms.

Mr. GOULD SHARP enquired to whom the lead was sold?——The SECRETARY said they had received bids from four firms—Messrs. Sheldon, Bush, and Co.; Treffry's Trustees; Nevill, Druce, and Co.; and Weston and Co.

Capt. SOUTHEY remarked that they always sent out eight or nine samples of each parcel, but only got bids from the four firms mentioned.

Mr. HOCKING, the engineer, reported that the machinery continued in fairly good working order, and amongst other things mentioned that the water destroyed the plates at Batters' boilers near the water line in about two years. The same water by the time it had passed to the other boilers lost its destructive properties. They had tried tan, but it had done no good, and they were now about to try soda ash.

A SHAREHOLDER enquired whether the water had been analysed?——Mr. HOCKING said it had not.

The SECRETARY, in reply to a question, said the credit balance, after payment of a 10s. dividend, would be 1079*l*. 13s. 9d., so they would increase the balance carried forward by 178*l*.

The CHAIRMAN remarked that in the summer months the working was less expensive than in the winter, so he hoped they would be able to continue the 10s.; indeed, if they had had the same price for their lead as last year they would have been able on the present occasion to pay a 20s. dividend.

Mr. GOULD SHARP enquired the value of the reserves in the mine, as he observed that no estimate had been made.——Capt. SOUTHEY

said that if they took their reserves at the present price of lead they would of course show a reduction as compared with last year, but the tonnage and quality of the reserves remained the same, that was to say they had been laying open quite as much ore ground as they had taken away. They had increased their tutwork, and had never stopped sinking for three years. They were for the present keeping Hawke's shaft in abeyance, until they got down the water, when they could sink much more cheaply there. Their 150 fm. level was the nearest to Hawke's shaft, and was now within 40 fms. of it, but there must be a hard bar of ground which held up the water, and none was coming through yet.

The accounts and reports were then unanimously adopted, and the declaration of a dividend of 10s. per share, payable on Feb. 14, agreed to. The proceedings terminated with the usual complimentary vote to the Chairman.

EAST CHIVERTON MINING COMPANY.

The general meeting of shareholders was held at the offices of the company, Gresham Buildings, Basinghall-street, on Wednesday,

Mr. J. B. HEARD in the chair.

Mr. GRANVILLE SHARP (the secretary) read the notice convening the meeting, and the minutes of the preceding one, which were confirmed. The statement of account for the sixteen weeks ending November 3, showing a debit balance of 481*l.* 13s. 10d., and the subjoined report was submitted:—

Jan. 23.—The following is my report of the prospects and of the progress made during the last four months. The rise in the back of the 74, west of shaft, which I stated in my report at the last general meeting would be commenced immediately, is up about 7 fms. above the back of the level, as the deposit of lead is dipping west, and the rise is being put up perpendicular; it has passed through the lead-bearing part of the lode, and still there is a good lode gone down in the bottom of the level. Our object here is to communicate with the 64 as quickly as possible for ventilation, which is being done by six men, at 4*l.* 10s. per fathom. The 74 is driven west of shaft about 76 fms; lode in present end producing stones of lead. It will be seen by the section (which I have had made expressly for this meeting, in order that our operations may be clearly understood) this end is driven beyond the run of the deposit of ore alluded to, which level we shall continue to drive further west, for in so doing it is very probable that other deposits of silver-lead ore will be discovered. The 64 cross-cut is driven south of the engine-shaft 35 fms.; the rock in which we are driving is still hard and spare, but I am pleased to say it is congenial for silver-lead ore. Every possible effort is being made in order to get out of this hard ground, so that better progress may be made for the intersection of the south lode, which has been very productive in the West Chiverton Mine adjoining. We have sold from the rise and end alone 10 tons of lead ore, which realised 150*l.*; had it not been for the serious drop in the price the same number of tons would have fetched over 200*l.* on account of its richness for silver. In looking at the mines of the district, and taking into account the great depth at which they have been productive, I consider this mine is comparatively in its infancy, and in following down the levels from shallow to the present bottom one, each has improved in value as depth has increased, which is very encouraging in looking forward to the result of the next level. In conclusion, I am pleased to say that our lead is of a high quality, and it is a very great relief to me to see the mine progressing so favourably, and that we are raising such rich quality lead ore to assist the expenditure.—RICHARD SOUTHEY, Manager.

The SECRETARY said he had been asked why the shaft had not been sunk deeper; they could hear from Capt. Southey that it had been a matter of consideration with the agents what was best to be done with regard to it.

Capt. SOUTHEY said the question was whether they should put down the perpendicular shaft nearer to West Chiverton, or break the underlie of the shaft they were at present using, and continue to sink parallel with the dip of the lode? He, of course, preferred perpendicular shafts, where there was no special reason for sinking at an angle, but in the present case the continuance of their present shaft perpendicularly would give them further and further to drive the deeper they went, whilst to sink the other shaft perpendicularly they would secure only slightly greater benefit, and would have to pay surface damage to get at it. By sinking as the dip of the lode, but not on the lode, they could go down in good country, which would stand without timbering, and keep their shaft always within 7 fathoms of the lode. They were putting up a winze, which would be completed in two months, and they would then be better able to conclude what ought to be done.

The question was discussed in a conversational manner with the aid of a section of the mine, but the points mentioned would be unintelligible without drawings.

The balance-sheet and reports were then unanimously adopted, and a call of 4s. per share was made. The proceedings terminated with the usual vote of thanks to the Chairman.

BODIDRIS MINING COMPANY.

A meeting was held at the offices of the company, No. 10, Coleman-street, on Wednesday,—Mr. ALFRED THOMAS in the chair.

The notice convening the meeting was read by Mr. CUMMING (the secretary), and the accounts, which had previously been circulated, were taken as read.

The following reports were read:—

Dec. 22.—Agreeable with your request, on Tuesday last I inspected the Bodidris Mine, and beg to hand you my report:—In the extent of your mineral grant I find there are several masterly lodes, having an east and west bearing, and intersected by a powerful cross-course. These lodes partake of the same character as the best producing lodes of the neighbourhood, the strata being precisely of the same nature and composition as all the mineral measures of this district—in fact, this formation has produced some of the richest lead mines in the kingdom. Parallel and adjoining to the north are the Nant Pant y-Gland and Bog Mines; the former made returns to the amount of nearly one million sterling, and the others were exceedingly rich, and since when called the Westminster Mines they produced 400 tons of lead monthly. Still further north, about a mile, are the Beigrave and Maes y-Safn Mines; the latter gave a profit of 400,000*l.* In the other direction, and not far away, east by south, are the celebrated Minera and Park Mines; the former yielded 600 tons of lead per month for many years, and is now producing 300 tons of lead and 200 tons of blende per month, showing the district in which your mine is situated to be highly in its favour, at the same time having large and well-defined lodes, the development of which, with a spirited and judicious management, cannot fail to bring about successful results.

Working Operations: The deepest point is the 70 yard level, which is driven west of sump-winze about 6 fms.; the lode is about 3 ft. wide, composed of lime, with lead and blende interspersed; I would recommend the pushing on of this level to get under the shallow diggings from which it has been reported the old men raised a large quantity of lead. The 60 yard level is being extended from the western shaft 23 fms. east of the eastern shaft; between the two shafts the lode in places is very much disordered, but to the east of the latter-named shaft a decided improvement has taken place both in the character of the measures and the lode; it is from 3 to 4 ft. in width, producing rich lead and blende. About 23 fms. west of the eastern shaft at the 60 a cross-cut is being driven south towards the Maes-y-Pwll vein, and is wrought about 60 fms., and the forebreast shows indications of being near the lode. I consider this to be one of the most important points in your mine, the vein is about parallel with the middle one, and in virgin ground. Where it crops up to the surface it is very large, and has a most promising appearance. The 45 yard level is wrought east of the eastern shaft about 60 fms.; the lode for nearly the whole of this drivage is large—from 3 to 4 ft. wide, and has yielded in places good deposits of lead and blende. In stoping the bottom of this level the lode is improving in going down, which speaks well for bringing forward the 60 yard level.

When this is done a winze can be sunk from the bottom of this stope, which will enable you to work the ground more expeditiously and much cheaper. Not having met with the junction of the Craigiog lode as yet in this level as anticipated I think you have done wisely in driving north to intersect it and ascertain its right bearing to know where the junction will be; the cross-cut is extended about 5 fms. It is the opinion of all that have inspected this mine that when the two lodes come together a large body of lead will be met with. At this level, about 6 fms. east of the shaft, they are cutting into the lode to see if part of it is gone to the north, as at the 30 yard level just over this place one part of the lode went in a northerly direction. The facilities for the development of this mine from 70 to 80 yards deep are highly favourable, no pumping machinery being required; neither would I recommend the erection of any until you ascertain the true position of the junction of the middle and Craigiog lodes, which will be a guide for sinking your engine-shaft. In conclusion, I beg to say I entertain a very sanguine opinion of this mine; and, on the whole, I can recommend the concern as a speculation well worthy of notice, and from its appearance I have not the slightest doubt of success being met with.—THOMAS MINERS.

Jan. 24.—I beg to hand you herewith my report of the underground and surface operations of the past twelve months. The depth of the workings on the middle lode is 70 yards, at which point a level has been driven westward on the course of the lode, which is large and promising, but the chief operations have been in the 60 yard level and upwards. The 60 yard level, on the middle lode, has been driven 22 fms. east from eastern shaft, through a lode varying in value, but producing lead and blende ores of good quality. From this level to the west of the shaft a cross-cut has been driven south a distance in all of 58 fms., with a view of intersecting the Maes-y-pwll lode, to which great importance is attached, as the said lode is reported by old miners to have been found very valuable at a shallow depth, and to be the champion lode of the district, and, therefore, giving high promise of valuable discoveries at the point of intersection aimed at. I calculate to arrive at this point and complete this object in two months from this time. I have thoroughly secured this level, which is driven on a cross course for the whole length of the drivage, with timber roofing and supports. I have laid down also for the whole distance a perfectly sound and permanent railroad for present and future transit of the produce of this part of the mine. This, of course, has been attended with considerable outlay, which will, however, be of lasting utility to the company. The 45 yard level has been driven 33 fms. east on a very productive lode for the greater part of the distance. The last 10 fms., however, have proved that the ore is dipping below the level, and rather than wait for the 60 yard level to come on underneath it I have determined to follow the dips and so open up the ground and return the ore produce to market more expeditiously. At this level I am also driving a cross-cut to intersect the Craigiog lode, and which I expect to cut in about 6 fms. further driving.

The 30 yard level has been driven east 19 fathoms, and this level also proves that the dip of the ore is diagonally to the eastward, and confirms the appearances of the 45 yard level. From the foregoing it will be seen that our ore deposits take an easterly dip, and are being followed down by the most expeditious means consistent with miner-like economy and safety. I have the greatest confidence in the result of these operations, but they must, however, take a few months to further develope. To summarise the underground operations, I may say they are in a satisfactory state. The lodes yield a fair quantity of ore for the depth attained, and I look upon it as a most favourable, and no less important, fact that where the lode is widest, strongest, and most productive the ore has taken a bolder and stronger downward course, which is in favour of my idea of a most profitable mine in depth. On surface a new road has been constructed and finished from the shafts to the dressing-floors, a work of time and expense, but of necessity. Kilns for the reception of the produce of the mine on delivery from the shafts have been built, buddles for dressing operations have been added to the surface floors, slime pits for the reception of the lighter ore waste have been made, and the ore receiving house and men's changing house have been completed. Additions and repairs have been made to the account house and smithies, and the mine put in thoroughly working trim. The present ore stock inconsiderable, 15 tons of which, worth (say) 13*l.* per ton, are already prepared for market. In conclusion, I beg to say that our operations have been fairly successful since your last annual meeting, and I feel confident that in a very short time I shall be able to announce the most satisfactory results from the intersection of the Maes-y-pwll and Craigiog lodes by the cross-cuts now driving, and from the operations below the 45 yard level, eastward on the middle lode.—H. HOTCHKISS.

The CHAIRMAN said that it was felt to be advisable in the interests of the company to have the mine inspected by a new man, and the one chosen was formerly underground manager at Carn Brea, and was now the manager of the Flintshire mines.

The CHAIRMAN then read the statement of the directors:—

In placing before you the annual statement of the finances of the company and the summary of the practical operations at the mines, your directors have to report the gradual development of mineral veins, and although as yet they are unable to announce the discovery of any very great and extensive deposit of mineral wealth, they are, nevertheless, satisfied from the average yield of ore from the works, so far as extended on the lodes, that an important future is in store for the company when those lodes are further developed in depth. A reference to the exhaustive report of the local agent will best explain the present position and future prospects of those operations. With respect to the finances, the statement furnished herewith shows an unexpended capital of 7313*l.*, represented by unissued shares. A valuable steam-engine for future requirement has been provided, the surface and and underground works are efficiently and thoroughly equipped with every necessary, so that the opening up of the property is being proceeded with in the most satisfactory manner, and your directors further trust that they will have to repost to you a valuable discovery of lead ore within the next two or three months. A large section of ore ground has been opened between the 30 and 60 yard levels, the value of which cannot fairly be estimated until it has been further proved. The average produce of the shallow levels has been fair quality ore ground, from which about 200*l.* worth is now on the mine unsold, but ready for the smelter. There are all the appearances and surroundings of a very productive mine in depth, and taking into consideration the great value of other mines in the neighbourhood, your directors cannot do less than congratulate the shareholders on the future prospects.

The CHAIRMAN moved that the accounts and report as presented be received and adopted, which motion was seconded and carried unanimously.

The CHAIRMAN said that one of the directors retired in accordance with the Articles of Association—Mr. William Arthur, who offered himself for re-election.—Mr. RUSHFORD moved, which motion was seconded, and unanimously agreed to.—A SHAREHOLDER proposed that the auditor—Mr. Francis Wood—be re-elected the auditor of the company, at a remuneration of five guineas. This was seconded and agreed to.

The CHAIRMAN: The reports are so exhaustive that I hardly think I can add any information to that which they already contained, but any questions that the shareholders like to ask as to the practical working of the mine in detail I shall be most happy to answer. The mine is being developed as fast as possible, our chief object being to drive two cross-cuts to intersect the champion lodes; these we have been working on for some months, and one of them 12 months, so that we have accomplished 60 out of the 65 fms. we have to drive, and the other five will be finished in the course of a month. We hope at the junction of the lode to find a grand discovery. The middle lode has yielded fair quantities of ore, but we look upon it as only a joint between the two lodes—the Craigiog and the Maes-y-pwll (reference was here made to a plan, by which the workings of the mine were clearly shown). It will take us (continued the Chairman) two months to cut the Craigiog lode. The men to the westward on this very lode has produced 30,000*l.* worth of ore.

Mr. RUSHFORD: What distance is the cross-cut from the old workings?

The CHAIRMAN: Between 200 and 300 yards. We shall then know where to put our main engine-shaft—when we meet with the junction of the lodes. In the meantime we are raising lead on the middle lode.

Mr. RUSHFORD: What is the value of the middle lode?

The CHAIRMAN: It is impossible to say the exact value, but all the lead that we have at present got has come from the middle lode. We have some splendid lead going easterly, and I think we shall have to put down a shaft upon it.

Mr. RUSHFORD: I suppose it is a good sign having this middle lode?

The CHAIRMAN: Yes, certainly that is a good feature. We expect, as I have said, a great deposit where the two lodes come together. It is always better for the main lodes to have feeders.

Mr. RUSHFORD: I visited the mine some time ago, and after having done so I felt far more favourably impressed with it than I had done before. I expect from what I saw in a few months we shall have something very good, and I, as a shareholder, would not like to part with any of the 350 shares I now hold at their present price. I have no doubt they will be worth more than they are at present, and that in a very short time. All persons on the spot seemed very desirous of doing all that was possible to achieve an early success, and Captain Hotchkiss appeared a very shrewd man, and one well up to his work. As far as mining captains go I do not think we could have a man more up to his work than he is, and that is a good augury of success for this company. The lead I saw at surface was as bright and clean as it is possible for that metal to be. (Hear, hear)

A SHAREHOLDER: I am very pleased to hear the remarks that have just been made, for I too have recently visited the mine. I had heard a great deal about it, but I went down not expecting to see what I did see. I was exceedingly gratified to find that the mine presented far more favourable characteristics than I had expected. The loadstuff coming from the 45 yard level seemed to be of very good quality, and the character of the rock in which the lead is embedded indicates that there is no doubt that at a greater depth there will be a very large deposit of lead. The most important point to come off, as the miners say, is the junction of the Maes-y-pwll and Craigiog lodes; and, although the agent could not tell me how long it would be, yet he believed it would be about six weeks or two months. I quite agree with you that it seems to be the endeavour of all connected with the concern that it should become profitable to the shareholders at the earliest possible moment. They seem to be most anxious to bring it to a successful issue. In course of conversation I elicited from one of the working miners that he is a holder of some 30 or 40 shares, and so satisfied is he that his investment is a good one that when I asked him if he would sell any he replied, "I would rather buy more." Now, when you hear a working man expressing confidence like that, I think the outside shareholders may be satisfied that they have a good property. (Hear, hear.) Knowing what has been done from the accounts that have been read, and knowing something of the old Craigiog Mine, I have no doubt that as we attain depth, and provide ourselve with the necessary machinery in order to prosecute the lower levels, that we shall have good results in Bodidris Mine. The lode is undoubtedly there, and it is only the question of the proper outlay of a moderate amount of capital for the shareholders to reap tenfold the amount of their outlay. It is a well-known fact that in the district there are mines, some of which are still working, which have returned, I may say, millions sterling for the outlay, and I see no reason why this mine, with all the same characteristics that these other fortunate mines possessed, should not do the same as exploration goes on, and as the moderate amount of capital for which I have stipulated is laid out. In mining you must expend money or you cannot get any results, and so far as we have gone the results seem to be highly satisfactory. The parcel of lead at surface, I should think, is under estimated.

The CHAIRMAN said said that the report was written prior to the shareholders' visit, and that additions had been made to the parcel in the interval.

A SHAREHOLDER: What is the extent of our sett?—The CHAIRMAN: We have two miles on the run of the lode. There was enough ground for half-a-dozen companies to work.

Mr. RUSHFORD said that at first he was inclined to think that too much money had been given for the mine, but he now entertained a different opinion, more especially when he considered that at a future time they might be able to sell a portion of the sett to advantage.

A SHAREHOLDER: Is the mine drained to the estimated junction of the lodes?—The CHAIRMAN said the mine was drained naturally to a depth of 80 yards. Below the 80 they must have pumping power, but the water was not very strong, nor was there so much of it to the east. It was in depth they must expect riches. The best ore in the mine was dipping below the 45 *fm.* level.

Mr. RUSHFORD: How long do you suppose the cash balance will last?—The CHAIRMAN: I think we have enough money to last for another twelve months, independent of ore sales, but we shall sell ore in the meantime. We have also shares in reserve, but I do not think we shall require to issue any. We have no water charges, and we can buy coal cheaply.

Mr. RUSHFORD: We have had a very good report from the Chairman and directors, and do not think we can do otherwise than thank them for what they have done. I am only sorry we are not in a position to give them a larger remuneration for their services. We can, however, do this—propose to them a cordial vote of thanks, which I have much pleasure in moving.

A SHAREHOLDER seconded the motion.

The CHAIRMAN: It is very satisfactory for us as directors to know that our services are appreciated. We are not particular as to our fees, for we are all shareholders, and look to the mine to recompense us. I attend the mine every month, and take no fee for that except my travelling expenses; I then see that everything is being properly conducted. I may add that we have a very good man in Capt. Hotchkiss, and I only wish shareholders would go to the mine and see things for themselves. I believe that if they did this they would confirm what has been said to-day.

A vote of thanks to the Chairman and Capt. Hotchkiss concluded the meeting.

MINING COMPANY OF IRELAND.

The half-yearly meeting of shareholders was held at the company's offices, Ormond Quay, Dublin, on Jan. 18,

Mr. P. B. D'ARCY in the chair.

Mr. HAROLD (the secretary) read the notice convening the meeting and the directors' report, which stated the net profit on the half-year ended Nov. 30 was 1194*l.* 19s. 10d., after providing for an expenditure of 766*l.* 12s. 8d. at the several establishment of the company. Adding this net profit to the balance brought forward from the previous half-year, the available balance is increased to 2993*l.* 15s. 2d., out of which the directors recommended a dividend of 2500*l.* (2s. 6d. per share), leaving a balance of 493*l.* 15s. 2d. to carry forward. The report regrets that since the previous report there have not been any symptoms of improvement in any of the great branches of industry, but, on the contrary, the depression has become deeper and more widespread in all quarters, and especially in mining enterprise. Under these circumstances it is gratifying to observe that the result of the operations of this company in the past six months, as compared with the previous half-year, exhibits improvement affording evidence of vitality and soundness in its transactions.

The CHAIRMAN regretted that almost everyone present could corroborate the report as to the continued depression of trade, and that as far as general trade went the look-out was a bad one—it was to be feared they had not come to the worst point. The market value of lead and copper had decreased during the half-year. Everything that could be done had been done to close up the Knockmahon Mine, but some of the men still raised ore on their own account, for which the company paid them so much in 1*l.* An expense of 900*l.* had been incurred in bringing to the surface their pumps and railway iron before the mines would be filled with water. Those mines, where once 1200 or 1300 people had been working, were now almost deserted, and the misery and wretchedness of the people that remained was painful beyond description. He had seen this himself; and the manager in his report recommended that the people should be allowed on their own account to work the mine, the company paying them so much in 1*l.* for the raisings, because "they are in such a state of destitution as to amount almost to starvation." He would himself prefer making a contribution towards alleviating the misery of those people than to allow any further explorations. However, they might be allowed to raise ore during the winter months. The Silevardagh Collieries could raise thrice as much as they had done, but they have no facilities for transport; the cartage to Thurles costs 5s., and the carriage thence to Dublin 7s. 6d. The Luganure lead mines are prosperous, but the decline in the price of lead has been felt, and the profits on the Ballycorus work had, by the same cause, been reduced to one-half.

Mr. FLAVELLE enquired whether they had had any bid for the Knockmahon Mine, and whether it was in the power of the company to turn the buildings and plant to account of the mine were closed?

The CHAIRMAN said they had had no bid, and that the other question was a very delicate one; it was impossible for him, in the interest of all parties, to go into details. It was intended to cease working the Knockmahon Mine, but the landlord of Duhallow Collieries having reduced the small rent to one-half, they advised giving it another six months' trial.

The report and accounts were then unanimously adopted; Sir John Ennis, Bart., Mr. John Quinlan, and Mr. H. T. Vickers were re-elected directors, and Mr. E. Fottrell, J.P., and Mr. H. G. Guinness were re-appointed auditors.

The CHAIRMAN then moved the following resolution, which he said would enable the company to surrender leases that were of no advantage:—"That subsection 6, section 61, of the Articles of Association be repealed, and that the following new regulation shall be adopted in lieu thereof, that is to say, the selling, assigning, or surrendering of any lease or leases, or of any property held under any lease or leases, and the directors may also sell lease, or otherwise dispose of any mines, property, house or tenement held by or belonging to the company."

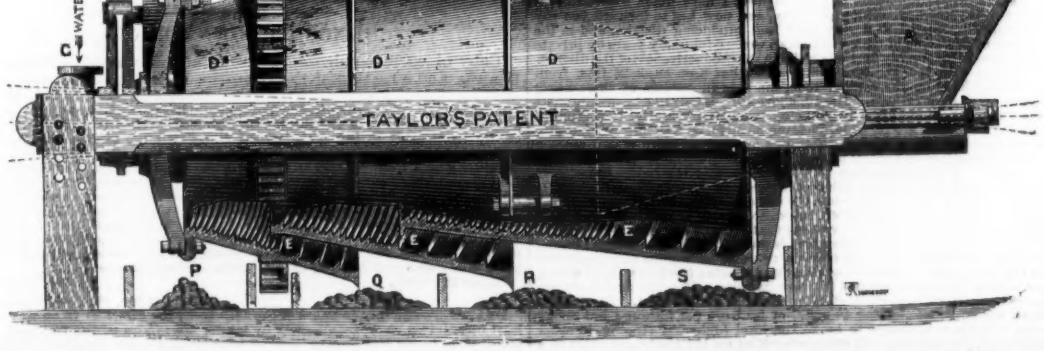
Mr. FOTTRELL seconded the resolution, which he regarded as a most important one.—The motion was adopted.—Thanks were voted to the Chairman, and the meeting separated.

[For remainder of Meetings, see to-day's Journal.]

TRAMWAYS.—A return issued by the Board of Trade shows that up to June 30, 1877, the total length of tramways authorised by Parliament was 363 miles 1 chain, and the length opened to the public was 213 miles 61 chains. The total capital authorised was 5,582,989*l.*; the amount paid up was 3,269,744*l.*; and the capital expended was 3,343,265*l.* Mechanical power has been authorised on 2 miles 38 chains of tramway in the Vale of Clyde and on the Wantage tramway, of which 2 miles 36 chains have been opened for public traffic.

EPPS'S COCOA—GRATEFUL AND COMFORTING.—"By a thorough knowledge of the natural laws which govern the operations of digestion and nutrition, and by a careful application of the fine properties of well-selected cocoa, Mr. Epps has provided our breakfast tables with a delicately flavoured beverage which may save us many heavy doctors' bills. It is by the judicious use of such articles of diet that a constitution may be gradually built up until strong enough to resist every tendency to disease. Hundreds of subtle maladies are floating around us ready to attack wherever there is a weak point. We may escape many a fatal shaft by keeping ourselves well fortified with pure blood and a properly nourished frame."—*Civil Service Gazette.* Sold only in packets labelled "JAMES EPPS and Co.," Homœopathic Chemists, London.

FIRST SILVER MEDAL AWARDED BY THE ROYAL CORNWALL POLYTECHNIC SOCIETY, 1876.



TAYLOR'S PATENT DRUM DRESSER,

FOR SEPARATING AND SIZING MINERAL AND OTHER SUBSTANCES.

By the aid of this invention any materials, which are of different specific gravity, can be concentrated and sorted mechanically, while in the case of ores the fine mineral is brought up with the larger particles instead of being washed into the waste—a most important feature.

This machine uses very little water in proportion to the quantity of material treated, and will be found a most useful and efficient dressing apparatus.

For further particulars, and to see machines at work, apply to the Patentee,

H. E. TAYLOR, 15, Newgate Street, Chester.

MECHANICAL VENTILATION OF MINES.

THE UNION ENGINEERING COMPANY (C. SCHIELE AND CO.,) undertake the Construction and Erection of their Colliery Ventilation Fans, of all sizes up to the largest required quantities of air. The leading features of their system are now generally known. Some of the specialities are: The absence of necessity for costly erections in masonry and brickwork: the small space required for the Machines, and the moderate first cost of the whole.

As the Fans are in a great measure self-contained, the necessary seats and connection with Pit are of a simple and inexpensive character. They can be arranged to be placed below ground when required, and also to work on Drawing Shafts. Certain sizes are often used to assist in Furnaces, with good effect.

[Estimates and further information will be prepared on receipt of the necessary particulars].

FOR SINKING PURPOSES, and also for places where small quantities of air are needed for Ventilating purposes, a Special Fan is made, in various sizes, with small engine combined, complete, arranged for both forcing and exhausting air.

NOISELESS BLOWING FANS, for Smithy Fires, and other purposes.

TURBINE WATER-WHEELS, specially designed and adapted for use in Coal Mines, for high falls of water, for the purpose of developing water power, where it is available, for use in hauling, pumping, and other works.

The Firm, having had an experience of nearly twenty-five years exclusively in the above Special Departments of Engineering, are prepared to advise on any matter affecting the application of Fans or Water Power in Collieries or elsewhere.

COAL-CUTTING MACHINERY, WINDING, HAULING, AND OTHER DESCRIPTIONS OF STEAM-ENGINES.

THE UNION ENGINEERING COMPANY (C. SCHIELE & CO.),

PNEUMATIC AND HYDRAULIC ENGINEERS,

(SOLE PROPRIETORS AND MAKERS OF SCHIELE'S LATEST PATENTS),

2, CLARENCE BUILDINGS, BOOTH STREET, MANCHESTER.

Great Economy for Millowners! Belting versus Gearing.

Drive your Shafting with Rodgers's Patent Wrought Iron Drums, instead of Gearing.

MANY THOUSANDS IN USE.

ADVANTAGES.

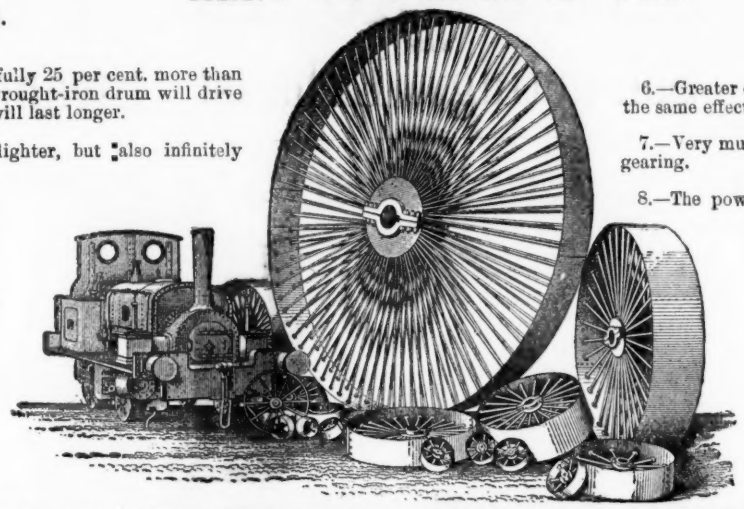
1.—Leather belts on these drums will drive fully 25 per cent. more than on cast-iron ones—viz., a 6 in. wide belt on a wrought-iron drum will drive as much as an 8 in. belt on a cast-iron one, and will last longer.

2.—These drums are not only considerably lighter, but also infinitely stronger than cast-iron ones.

3.—In case of damage from Fire they are easily repaired. We have repaired hundreds at a small cost.

4.—For MAIN DRIVING purposes they are invaluable, especially in case of a new mill, no expensive ashlar work being required to withstand the jars of costly gearing.

5.—The wrought-iron drums and belts cost less and are more easily fixed than gearing.



ADVANTAGES.

6.—Greater economy in steam power, as it requires less power to transmit the same effective force with belts than it does with gearing.

7.—Very much greater economy in subsequent repairs as compared with gearing.

8.—The power is transmitted evenly, faithfully, noiselessly, and without the jar arising from defective or worn gearing.

9.—They require no cases for transport or shipment.

They can be supplied up to

24 FEET DIAMETER.

FOR PRICES AND PARTICULARS APPLY TO THE SOLE MAKERS,

HUDSWELL, CLARK, AND RODGERS, RAILWAY FOUNDRY, HUNSLET, LEEDS.

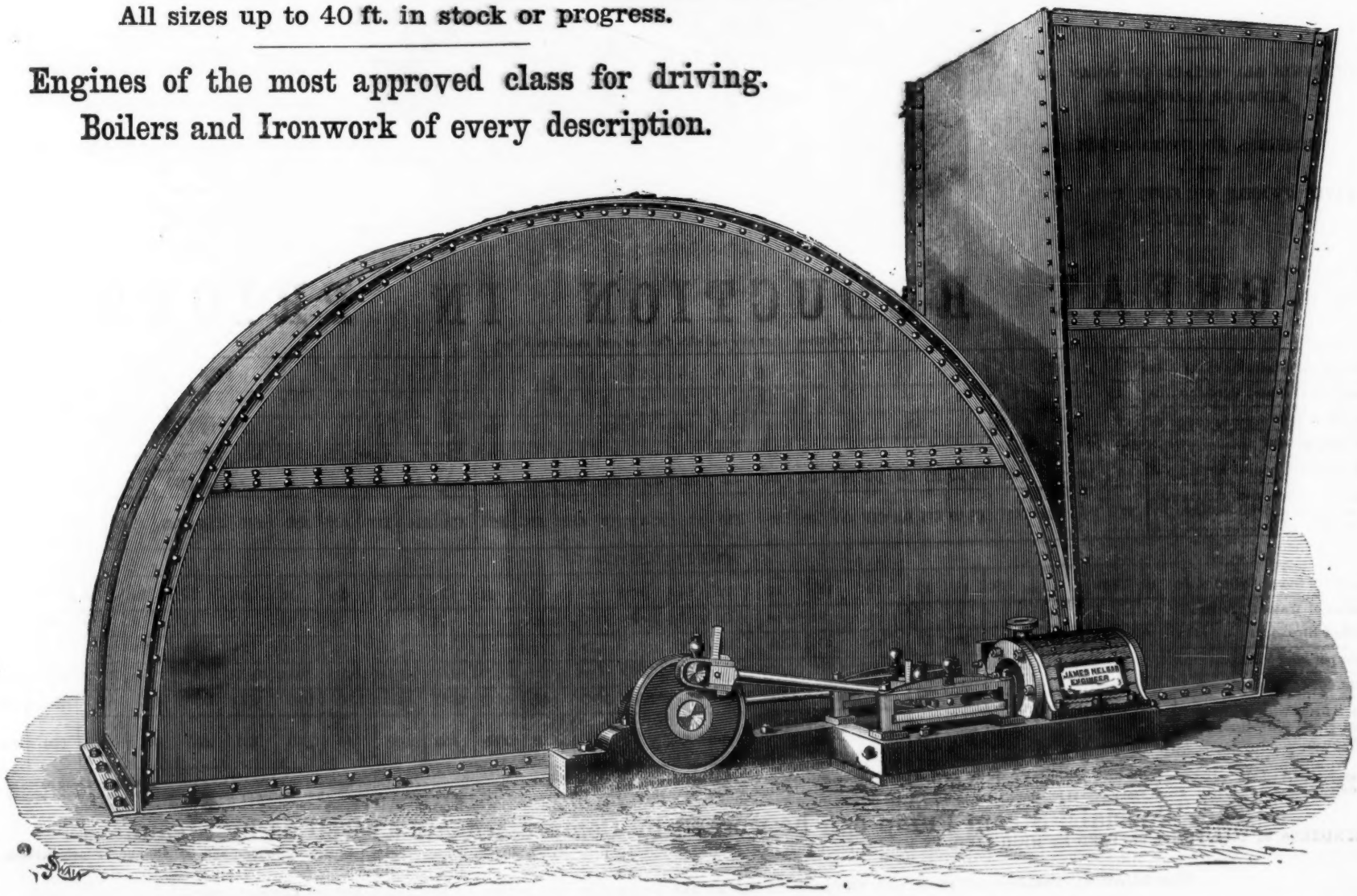
GUIBAL VENTILATING FAN

FOR COLLIERIES AND MINES.

PRICES AND PARTICULARS ON APPLICATION.

All sizes up to 40 ft. in stock or progress.

Engines of the most approved class for driving.
Boilers and Ironwork of every description.



MANUFACTURED BY

JAMES NELSON, Marine and Stationary Engine Works,

GATESHEAD-ON-TYNE.

PARIS INTERNATIONAL EXHIBITION, 1867.

VIENNA INTERNATIONAL EXHIBITION, 1873.

LONDON INTERNATIONAL EXHIBITION, 1874.

CORNWALL POLYTECHNIC SOCIETY, 1867 and 1873.

TANGYE BROTHERS AND HOLMAN,

HYDRAULIC AND GENERAL ENGINEERS,

CORNWALL HOUSE, 35, QUEEN VICTORIA STREET, LONDON, E.C.,

AND BIRMINGHAM, (TANGYE BROTHERS), CORNWALL WORKS, SOHO.

The "SPECIAL" DIRECT-ACTING STEAM PUMP,

WITH

Holman's Patent Self-acting Exhaust Steam Condensers.

UPWARDS OF 12,000 "SPECIAL" STEAM PUMPS ARE IN USE.

After eight years of successful application for all purposes to which steam-driven pumps can be applied, THE "SPECIAL" STEAM PUMP STILL MAINTAINS THE FIRST POSITION IN THE MARKET, notwithstanding that it alone—of all direct-acting pumps—has been subjected to the great variety of severe tests that must be encountered in such a period of time. Some valuable improvements have been suggested in the course of a long experience, and their adoption has rendered the apparatus at once the simplest and most certain in action. There is absolutely no extraneous gear, and the steam cylinder is *no longer than the pump*. The valves are of easy access, and are suited for pumping fluids and semi-fluids of almost any consistency.

Holman's Condenser

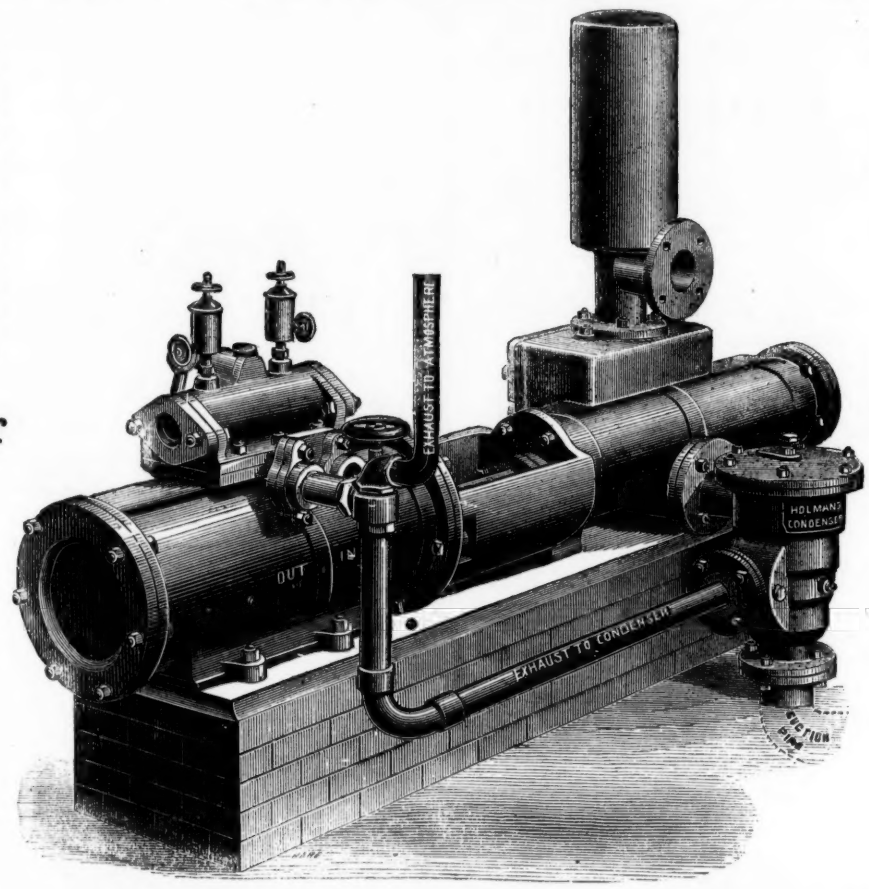
TURNS WASTE STEAM INTO GREAT POWER.

SAVES HALF ITS COST IN PIPES AND CONNECTIONS.

PREVENTS ALL ESCAPE OF STEAM IN MINES OR ELSEWHERE.

REQUIRES NO EXTRA SPACE.

SAVES TWENTY TO FIFTY PER CENT. OF FUEL.



WILLIAM ELLIOT, Esq., *of the Weardale Iron and Coal Company, writes under date Sept. 17th, 1875, as follows:*—"We have now THIRTY-FIVE of your SPECIAL STEAM PUMPS in operation at the various collieries under my charge—some of them employed pumping water out of our pits to the depth of 50 fms.—others employed in the pits, and a good many feeding Boilers. I have no hesitation in saying that we have found them the Cheapest and Best Pumps of the kind we have tried. I can with confidence recommend them to intending purchasers."

Messrs. BURT, BOULTON, and HAYWOOD, *Chemical Manufacturers, of London*, have FORTY of the "SPECIAL" STEAM PUMPS in use at their works.

HOLMAN'S CONDENSERS

Are made to suit any size and kind of Steam Pump. They form a part of the suction pipe of the Pump, and while they effectually condense the exhaust steam they produce an average vacuum of 10 lbs. per square inch on the steam piston, increasing the duty of the Engine, and effecting a saving in fuel of from 20 to 50 per cent.

In Mining operations these Condensers will be of great value.

All Boiler Feeders are recommended to be fitted with these Condensers, as not only is the exhaust steam utilised in heating the feed water, but is returned with it into the boiler.

GREAT REDUCTION IN PRICES.

The following sizes are suitable for low and medium lifts:—

Diameter of Steam Cylinder ...In.	3	4	4	4	5	5	5	6	6	6	6	7	7	7	7	7	8	8	8	8	8	9	9	9	9	9	10	10
Diameter of Water Cylinder ...In.	1½	2	3	4	3	4	5	3	4	5	6	3	4	5	6	7	4	5	6	7	8	5	6	7	8	9	5	6
Length of Stroke .....In.	9	9	9	9	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	18	12	12	12	18	24	12	12
Gallons per hour	680	815	1830	3250	1830	3250	5070	1830	3250	5070	7330	1830	3250	5070	7330	9750	3250	5070	7330	9750	13,000	5070	7330	9750	13,000	16,500	5070	7330
Price of Special Pump ...£	**16**	**18**	**20**	**25**	**22 10**	**27 10**	**32 10**	**25**	**30**	**35**	**40**	**30**	**35**	**40**	**45**	**50**	**40**	**45**	**50**	**55**	**65**	**50**	**55**	**60**	**70**	**85**	**55**	**60**
Extra, if fitted with Holman's Condenser and Blow-through Valve	£7	£7	£9	£11	£8 10	£11 10s	£12 10s	£9	£12	£15	£15	£10	£13	£15	£16	£22	£13	£16	£16	£22	£22	£16	£16	£23	£24	£35	£17	£17

CONTINUED.

Diameter of Steam Cylinder..In.	10	10	10	10	12	12	12	12	12	12	14	14	14	14	14	14	16	16	16	16	16	18	18	18	18
Diameter of Water Cylinder..In	7	8	9	10	6	7	8	9	10	12	7	8	9	10	12	14	8	9	10	12	14	9	10	12	14
Length of Stroke .....In	12	18	24	24	18	18	18	24	24	24	24	[illegible]	24	24	24	24	24	24	24	24	24	24	24	24	24
Gallons per hour	9750	13,000	16,519	20,000	7330	9750	13,000	16,519	20,000	30,000	9750	13,000	16,519	20,000	30,000	40,000	13,000	16,519	20,000	30,000	40,000	16,519	20,000	30,000	40,000
Price of Special Pump..£	**65**	**75**	**90**	**100**	**75**	**80**	**85**	**110**	**120**	**140**	**110**	**120**	**130**	**140**	**160**	**180**	**140**	**150**	**160**	**180**	**200**	**180**	**190**	**210**	**230**
Extra, if fitted with Holman's Condenser and Blow-through Valve	£23	£24	£35	£35	£20	£27	£27	£38	£38	£50	£28	£28,	£40	£40	£55	£55	£28	40	£40	£55	£55	£45	£45	£56	£60

Intending purchasers of Steam Pumps would do well to observe the great length of stroke, short steam cylinder, and short piston of the "Special" Steam Pump, as compared with the short stroke, long steam cylinder, and long piston of the Pumps of other makers, as the efficiency and durability of the machine, and the space occupied by same, greatly depend upon this. The advantage of long strokes will be obvious when purchasers are reminded that each set of suction and delivery valves of a "Special" Steam Pump with 24 in. stroke, running at 120 ft. per minute, would open and close only 30 times per minute, as against 120 times per minute in a Pump with only 6 in. stroke performing same duty.

The "Special" Steam Pump can be worked by Compressed Air as well as by Steam.

HUNDREDS of these PUMPS are USED for HIGH LIFTS IN MINES, for which purpose they are made with 21, 24, 26, 28, 30, and 32-inch Steam Cylinders, and 36 48 and 72-inch Strokes.

The following Testimonial gives one Example of the Power Gained by the action of Holman's Patent Condensers:—

NORLEY COLLIERY, WIGAN.

Messrs. TANGYE BROTHERS AND HOLMAN.

GENTLEMEN,—I have great pleasure in recording my entire satisfaction with the working of the Holman's Patent Steam Pump Condenser which you have supplied to us. The complete condensation of the steam is, apart from its value in the strict economical sense, a most valuable feature in the drainage of underground workings. The perfect manner in which this important result is accomplished by your Condenser is extremely creditable to you, and merits the thanks and commendation of the Mining Engineer. When we start the "Special" Steam Pump the Condenser commences working automatically, and maintains a constant vacuum of 10¾ lbs. per square inch, even when we run the Pump upwards of 80 strokes (106 feet) per minute. It may perhaps be interesting to you to know that when we were running the Pump at 84 strokes (168 feet) per minute, the steam gauge indicating a steam pressure of 36 lbs. per square inch, 80 yards from the Pump and the Condenser vacuum gauge on the exhaust pipe indicating a steady vacuum of 21½ inches, I turned the exhaust steam from the Condenser into the atmosphere, when the speed at once fell to 44 strokes per minute. The working economy thus shown is really so great that the cost of the Condenser must be saved in a very short time. (Signed) J. THOMPSON.

NORTH OF ENGLAND HOUSE ... ... TANGYE BROTHERS AND RAKE, ST. NICHOLAS BUILDINGS, NEWCASTLE-ON-TYNE.
SOUTH WALES HOUSE... ... ... TANGYE BROTHERS AND STEEL, Tredegar Place, NEWPORT, Mon.; and Oxford Buildings, SWANSEA.

AWARDED THE PRIZE MEDALS AT LEEDS, MANCHESTER, AND WREXHAM EXHIBITIONS, 1875 AND 1876.

HADFIELD'S STEEL FOUNDRY COMPANY,

ATTERCLIFFE, SHEFFIELD,

DEVOTE THEIR EXCLUSIVE ATTENTION TO THE MANUFACTURE OF

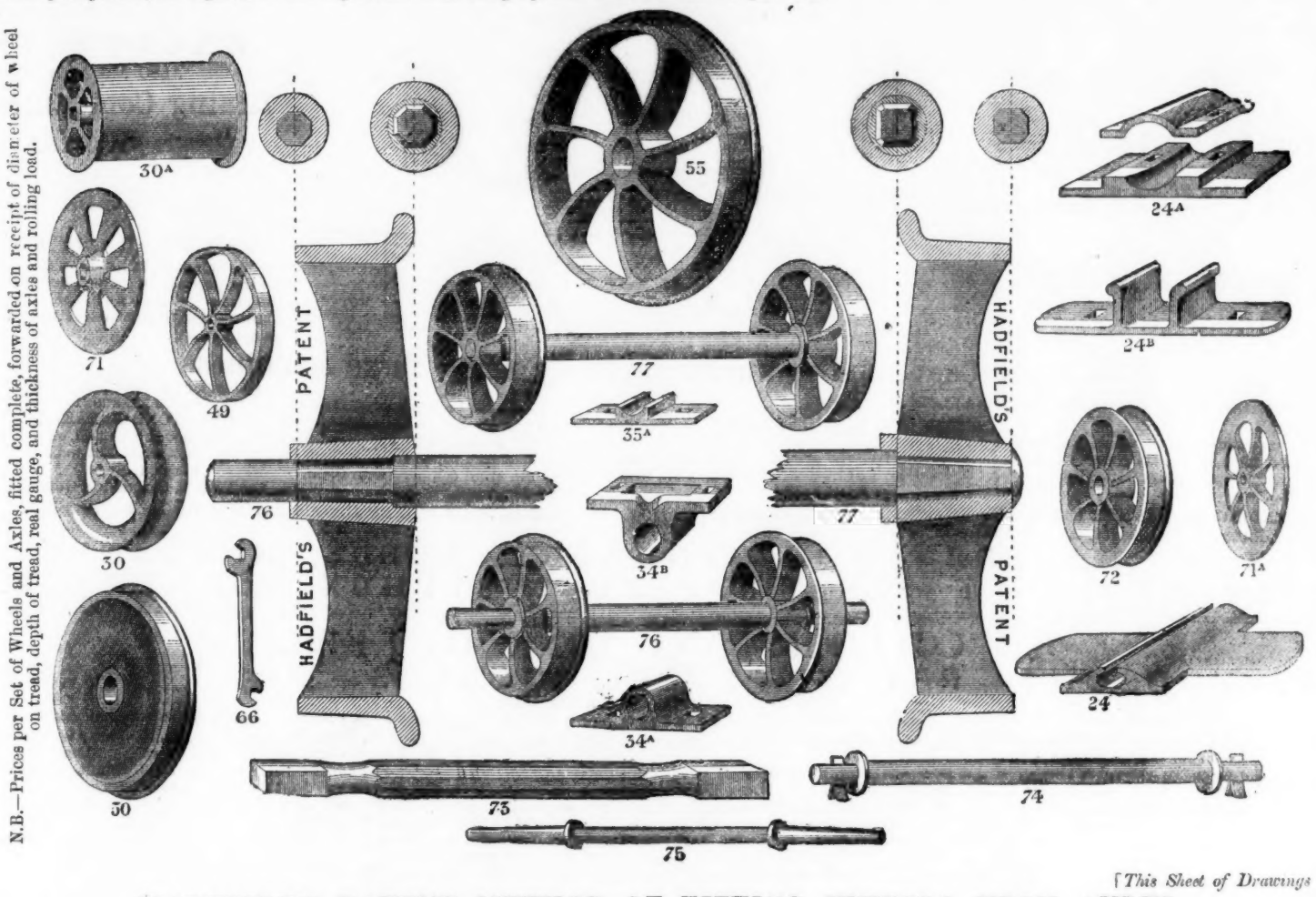
CRUCIBLE STEEL CASTINGS, for Engineering and Machine Purposes,

AND ARE THE SOLE MAKERS OF

HADFIELD'S CRUCIBLE STEEL WHEELS.

One of our departments is specially adapted for the manufacture of these Wheels (as shown below), for Collieries, Ironstone Mines, Slate Quarries, Ironworks, Lead Mines, &c., &c. We have made, and are now making, many HUNDRED THOUSANDS; and having Patented a New Method of Fitting Wheels upon axles, being cheap, effective, and expeditious, we can execute orders entrusted to us with promptitude, our capacity in this department alone being equal to about 2000 wheels per week.

N.B.—Prices per Set of Wheels and Axles, fitted complete, forwarded on receipt of diameter of wheel on tread, depth of tread, real gauge, and thickness of axles and rolling load.



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HADFIELD'S PATENT METHOD OF FITTING WHEELS UPON AXLES.

The advantages of the above system are that the Wheels being forced upon a Taper Square-ended Axle, by Machinery, and then riveted (the machine securing truth), it is impossible that they can come loose or get within gauge. They are very heaply fitted on, and run exceedingly true.

We construct the Arms of wheels upon the curved principle (as shown in the drawings above), consequently the shrinkage or cooling of the Castings is not interfered with, thus securing the greatest advantages of our very strong material.

CRUCIBLE CAST-STEEL WHEELS, when cast by us, are made from one-third to one-half lighter than Cast-Iron. They cannot be broken while working, even with rough usage, and will wear at least twelve times as long as Cast-Iron, thus saving animal and steam power, and reducing wear and tear immensely.

We would also draw special attention to our INCLINE PULLEYS and CAGE GUIDES, the adoption of which will prove highly advantageous.

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Churches,
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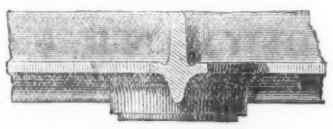

FRANCE,
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—CAN BE DESIGNED AND MANUFACTURED TO SUIT ANY STYLE OF ARCHITECTURE OR POSITION WHERE A WINDOW MAY BE REQUIRED.

ARE BEING EXTENSIVELY USED IN—

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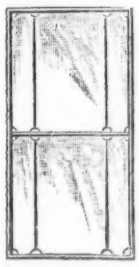

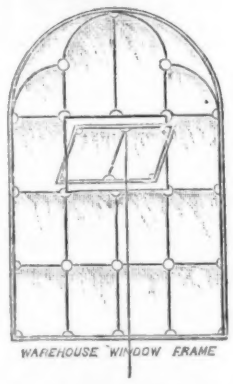

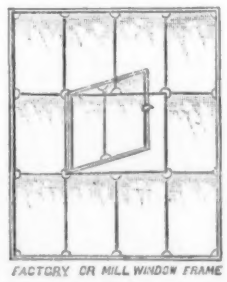

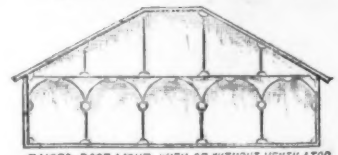

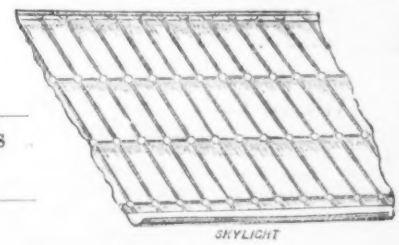

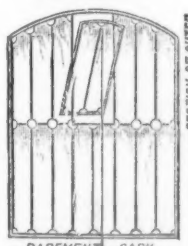

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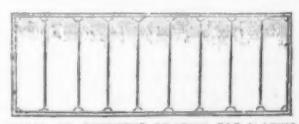
In Basement Storeys and Exposed Positions Shutters and Guard Bars are dispensed with.

ILLUSTRATED CATALOGUES ON APPLICATION.

Security is obtained in these Skylights without Guard Bars, and with less obstruction to Light.



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Four times longer than any other.

60 GOLD AND SILVER MEDALS.

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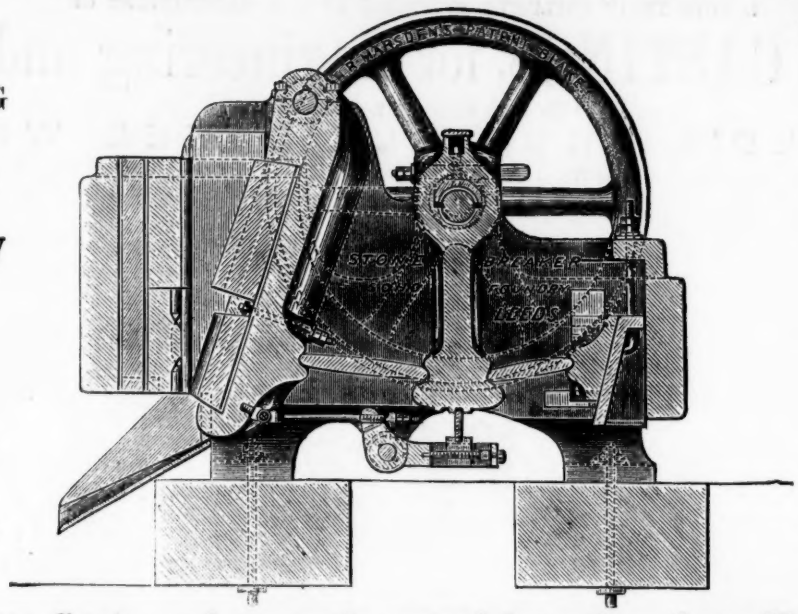

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H. R. M. has long observed the want of cheaper machines,

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DEAR SIR,—We have adopted your Stone Breakers at many of the mines under our management, and are pleased to be able to state that they have in all cases given the greatest satisfaction. We are, yours faithfully, JOHN TAYLOR AND SONS.

H. R. Marsden, Esq.

Royal Agricultural Show, Liverpool, July, 1877.

DEAR SIR,—I have broken over 40,000 tons of very hard LIMESTONE into ROAD METAL, for the Newport and other Road Trusts, in your PATENT STONE BREAKER, AND ALL WITH ONE PAIR OF JAWS, which are STILL IN USE. I do not think at all, but am quite sure yours are the only Machines which fully perform the work you set them out to do, and there are none in the Show can at all compare with them. Yours, truly,

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